The Citrus Industry
EXCLUSIVE SPECIALIZED CITRUS PUBLICATION
Issued Monthly
Representative of every interest
Representing no special interest

Vol. 8 TAMPA, FLORIDA, OCTOBER, 1927 No. 10

Crotalaria As A Soil Builder

By W. E. Stokes and W. A. Leukel

In 1909 the Florida Experiment Station, cooperating with the Forage Crop Office of the United States Department of Agriculture, introduced a leguminous plant which today ranks high as a soil improver for the poor sandy soils of Florida. Various species of this plant, Crotalaria, have been tried out but the most promising ones in Florida are Crotalaria striata and Crotalaria sericea. These Crotalarias grow to a height of 4 to 6 feet. They both have yellow flowers. The Crotalaria striata leaf is three parted or trifoliate, while the Crotalaria sericea leaf is one bladed or simple. Seed of Crotalaria striata are brown to olive green in color and about the size of cleaned beggarweed seed, while seed of Crotalaria sericea are black in color and twice as large as Crotalaria striata seed. The principal difference between the two species is in the habit of flowering. Crotalaria striata starts flowering about 60 days after germinating and flowers continuously until killed by low temperatures, while the Crotalaria sericea starts flowering later, but puts on all its flowers during a definite period. Both are killed by a temperature of 28 degrees F.

Adaptation

In various tests at the experiment stations at Gainesville, Lake Alfred, Quincy, and Belle Glade, and cooperative tests in different parts of Florida, it was found possible to grow Crotalaria successfully on any soil in the state except the raw peaty lands of the Everglades.

Time and Method of Seeding

Crotalaria may be sown from March to June. Early seedings generally produce a more satisfactory cover crop to compete with weeds. Rates of seeding vary from 5 to 20 pounds per acre. The heavier rates of seeding produce heavier stands, a finer quality of top growth and a larger yield per acre. Lower rates of seeding produce a top growth of coarser texture but yield a larger quantity of seed. Five to twelve pounds of seed per acre is sufficient to produce a good stand which will yield enough seed for a thick volunteer crop the following season. The seed may be planted broadcast or in rows. Both methods give good results. No inoculation is necessary. Thorough preparation of the land and shallow covering of the seed are recommended.

Harvesting for Seed or Hay

Crotalaria seed may be harvested when mature or allowed to fall upon the ground to produce a volunteer crop the following season. It has been found to yield as high as 125 pounds of seed per acre. If grown for seed, planting in rows assures a higher production. The seed may be threshed by hand, with a flail or with a pea huller. Seed will shatter after they mature if left too long.

Crotalaria can be mowed once a year, just before blooming commences, to prevent it from becoming too coarse. The plants should be cut from 8 to 10 inches from the surface of the ground. A second top growth will then soon follow and produce seed for a volunteer crop the next year. Cutting the plants close to the ground results in a poor second top growth or none at all.

Crotalaria, when grown on Norfolk sandy soil and harvested as a hay crop, has produced one-third more in pounds per acre than Barbham cowpeas, twice as much as bunch velvet beans, and three times the yield produced by beggarweed. Its hay is of a coarser texture when these larger yields prevail. Its value as a feed crop is still in the experimental stage.

Valuable As A Green Manure Crop

As a soil improver for Florida it has given better results than other leguminous crops. The percentage and quantity of nitrogen in Crotalaria is as high as or higher than in any other leguminous crop depending on the stage of growth. This high percentage of nitrogen coupled with the large yield of top growth has producplants. Turning under this high nitrogen per acre in tests carried out at the Gainesville and Lake Alfred stations. The greater part of this nitrogen is fixed from the air by the nodule bacteria on the roots of the plants. Turing under this high nitrogen crop not only increases the available nitrogen in the soil but also adds to the humus content of the soil. When compared with other green manure crops turned under, Crotalaria produced 3,000 pounds more organic material per acre.

Decomposition goes on very rapidly if turned under in a succulent stage of growth. When Crotalaria is turned under in the more mature

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Citrus Fruits – Cultivation

Factors Affecting Quality and Quantity of Citrus Fruits

By E. L. Lord, University of Florida, Gainesville, At State Horticultural Meeting

The interest of fruit growers must in the nature of the case be centered on the quantity and quality of the fruit produced. This Interest has always been reflected in the previous meetings of this Society, and no doubt will continue to be a vital topic for discussion at future meetings for years to come. This paper is presented to the Society, not with the idea that anything new or startling has been discovered, but rather with the purpose of making a survey of the subject from a slightly different angle from that of previous discussions.

In the first place it must be emphasised that the factors affecting fruit quality are related to those affecting quantity both directly and indirectly; that conditions favoring quality tend to reduce quantity and vice versa; and that citrus fruit growing must be a compromise between these groups of two factors; for we cannot make a profit if we produce a small amount of fruit of good quality or a large amount of fruit of poor quality.

Furthermore, in discussing the factors involved it may be pointed out that while any factor mentioned may be of importance no way has yet been found to measure its relative value. In consequence each grower must use his own judgement in evaluating the relative importance of these factors in handling his own grove. No attempt is being made to lay down rules for guidance; it is more desirable to discover fundamental principles which the grower may apply to his special needs and purposes.

Let us first take up the factors in the environment which affect quantity. In order to get a maximum crop it is necessary that the tree be situated in a favorable soil, that is, one which contains at all times sufficient water and plant food for full development. In order to contain at all times a large amount of plant food such a soil must have a heavy water holding capacity. It will also be well drained with an abundant humus supply, a favorable soil reaction (neutral or slightly acid), the largest possible amount of favorable bacteria, sufficient plant food so no deficiency may act as a limiting factor, and there must be no toxic substances in the soil which might prevent absorption or injure tissues. In order to develop and maintain such soils in Florida attention must be paid to fertilization, cover crops, irrigation, drainage and cultivation. A further requisit is the securing of protection from frost damage. This is best achieved by locating the tree where this type of damage is at a minimum. Frost protection by location is the cheapest and most satisfactory form of protection. Frost injury affects quantity by destroying bloom or by reducing the top. This second effect is similar to that produced by top pruning, which indirectly affects yields.

The tree should also be protected from injury by disease, insects, and other pests. Any agency which reduces the size of the top or root system, or impairs their function, reduces in like proportion the quantity of fruit produced. There is no necessity of going into this question in detail as the pathologists and entomologists have shown you how to eradicade or control these troubles.

Another factor involved has to do with root stocks and root systems. In order to get maximum results it is necessary to have a vigorous, large root system suited to the type of soil in which it is planted. Not only should it be suited to the soil, but also to the type of cion which is topworked upon it. It is not necessary to elaborate on this factor either, as citrus growers have had this phase of the subject thoroughly driven home to them. The root stock must be free from disease and insect damage, and to be long lived should be congenial to soil and cion.

The citrus tree producing the largest crops must have a vigorous healthy top adapted to the stock on which it is worked. There should be no interference with the flow of soil solutions from the root to the top, nor of plant food from the leaves to the roots. The foliage must be heavy, active, free from disease and insects. The growth of the previous season should have been sufficient to produce as many fruit buds as the tree requires and to carry as much fruit as the root system can supply with water and nutrients. All pruning of active, healthy leaf areas must be avoided, as its effect is to reduce yield. The framework of the tree must be built up in such a form that it will carry maximum loads without injury either to the fruit or to the tree itself. In order to produce a sufficient quantity of marketable fruit it is necessary to see that the root system, trunk, leaves, buds, bloom and young fruits are not harmed in any way by diseases, insects, or cold, or by mechanical injuries.

All the above factors are well known and understood by the citrus grower and do not need elaboration or further discussion, but there are many other factors which are little known although they may affect the quantity of fruit produced to an equal extent. Suppose we have a vigorous orange tree with healthy root, trunk and leaf systems, a favorable soil, adequate water and food; in other words everything mentioned above which favors the production of a large quantity of fruit, yet many times there is a short crop. The conditions which bring this about may be within the control of the growers; yet because of imperfect knowledge his remedy for it may be entirely inadequate. Most citrus growers know that the blooming period is a critical time in the life of the crop, yet few realize that it is possible to partially control the amount of the bloom produced and of fruit set. The citrus flower is usually self-pollinated, in other words does not require the assistance of bees in order to set a crop. The fact that this is true saves the citrus grower much trouble. Other factors, however, may affect fruit setting if overlooked. For example, while there may be an adequate supply of water to favor growth throughout the entire season, yet a temporary deficiency at or preceding the blooming period may cause a short crop. In the same way a temporary deficiency of important food elements, particularly nitrogen, may produce a like result. An attempt to protect trees against cold damage by nitrogen starvation may cause the loss of a considerable portion of the bloom. The effect on the nitrogen reserve brought about by heavy yields of the preceeding year is also underestimated. While the color of the leaves is usually a good indication as to whether the tree is getting sufficient nitrogen during the

growing season, yet the fact should not be overlooked that a tree which has had an adequate supply of nitrogen all winter may be suffering from nitrogen starvation by the time it is in full bloom, due to the fact that the nitrogen reserve is used up in building new tissue and conditions have been unfavorable for renewing it. Generally a liberal application of nitrogen in a soluble form to the tree several weeks before the blooming period is one of the most effective means of increasing the crop.

Assuming that we have supplied all the conditions necessary to bring out a heavy bloom, yet there will be times when bloom does not show up on the spring flush. If the grower is observant this condition will be accounted for by a previous unfavorable growing season but this is only a partial explanation. Let us look farther and see if we may find the real reason. In the citrus groves of California it has been found that there is a direct relation between the character of the growth of the previous season and the subsequent bloom. There is no doubt in my mind that this relation holds true also in Florida. The orange tree grows by a series of flushes which are responses to the tree's environment. Normally there is a spring flush which tends to check during the dry months of April and May; then the summer flush beginning with the rainy season and diminishing again with a lack of water or plant food; and sometimes there is a fall flush if conditions are favorable. In young, well-fed trees with a constant water supply there may be no break between these flushes, but each flush tends to become shorter as the age of the tree increases.

In young trees where the growth of the tree is nearly continuous, conditions are unfavorable for fruit bud differentiation. Consequently trees favor early bearing. When the conditions tending to check young growth is upright and vigorous in young trees they will usually be unproductive and only as the summer growth becomes less will the trees come into bearing. An abundance of nitrogen and water and a capacity in the stock and cion enabling them to use raw materials to best advantage are not conducive to early bearing. Certain combinations of stock and cion, however, particularly those showing unequal unions, tend to differentiate their bloom when very young and are heavy, consistent producers during the life of such combination. On the other hand these trees are more or less short lived. Even a vigorous type of tree with perfect union which would normally not produce when young may be thrown into bearing by any factor or combination of factors which tend to check growth between May and August. Root pruning, heavy potash fertilization, lessened supplies of water, girdling, bending of limbs, are all agencies which tend to increase the carbohydrate-nitrogen ratio and consequently to stimulate fruit bud differentiation. Top pruning, heavy nitrogen fertilization, shortage of potash and frequent shallow cultivation tend to lessen this ratio and thus delay fruiting. In mature trees well supplied with foliage fruit bud differentiation normally occurs if the trees are well-fed, but if they are carrying a heavy crop the burden on the trees may be such that they may suffer from nitrogen starvation as shown by a loss of color in the leaves. If a nitrogen reserve is not built up there will usually be a short crop.

If these statements are correct, and I believe them to be thoroughly sound, then quantity production on mature trees will require liberal feeding of all nutrients up to capacity in spring and early summer. In young trees just coming into bearing a formula high in potash and low in nitrogen would be indicated for summer fertilizing, and the application of an abundant supply of soluble nitrogen two or three weeks before blooming would be found desirable on both young and mature trees. Unfortunately some of more common forms of soluble nitrogen such as sulfate of ammonia and nitrate of soda, have often given undesirable results; probably due to their unfavorable effect on soil reaction to a lack of humus in the soil the loss of too much nitrogen by leaching, or undesirable residues. An application of one of the newer forms of soluble nitrogen such as urea or calcium nitrate will usually give better results. Urea in particular seems to be well suited to this purpose and I believe that as it becomes more easily obtainable it will be a very valuable agent in the hands of the citrus grower who learns how to use it properly. It seems to leach much less readily than the other forms of soluble nitrogen, to injure the plant less when fairly high concentrations are used, and to leave no harmful residues.

Quality Production

If the discussion of the factors affecting quantity of fruit seems to you inadequate, the following factors affecting quality will appear still more vague.

In the first place no type of grove handling will make a variety which is naturally of poor quality into a first-class fruit. In some seasons and under some circumstances it may be better than at others, but in the long run there will be little profit in handling such fruit.

The question of quality is not always well defined by either the grower, the shipper or the consumer. The grower considers a fruit of high quality if he can enjoy it on his own table; the shipper recommends its quality if it tops the market for its season; while the consumer selects it for its appearance, flavor and keeping qualities when he buys it from the retailer. In consequence we must differentiate between fruit quality and commercial fruit quality. A fruit may be very pleasing both to the eye and to the palate and yet be entirely unsatisfactory when placed at the mercy of the assembling, transporting and distributing agencies. All of you know of varieties which are fine fruits when grown at their best, yet which reach the consumer in the north in a state unfit for human consumption. In fact certain varieties can only be enjoyed in the state, as they are unfit for transportation. Such varieties should not be planted extensively or if already planted should be top-worked as soon as their faults are discovered.

How can we define a fruit of first-class commercial quality? To my mind an orange should be well shaped, have a thin, smooth rind, well and evenly colored, with no defects or injuries. The pulp should be juicy with a minimum of rag, practically seedless, and with an even blending of acidity, sweetness and flavor. It should have these charactertistics not only when picked from the tree but when it reached the consumer. Otherwise it is not a satisfactory commercial fruit.

It is easy enough to define such a fruit but not to produce it. It requires a climate with adequate moisture and heat, a soil lacking neither humus, water nor plant food, a root-stock which can supply water and nutrients to the top slowly and evenly, with no tendency to force excessive growth and consequent coarseness, or to dry out the fruit before maturity; and a top with healthy foliage lacking the deep green of vigorous growth. It implies proper choice of variety, proper protection of the surface of the fruit from disease, insects and other injuries which may mar its appearance, moderate or even scanty fertilization and cultivation, particularly in summer and fall. In fact from the tree standpoint the best fruit is produced where there is slow,

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Soil Improvement In Citrus Groves

By K. E. Bragdon, Winter Haven, Fla., At Florida State Horticultural Meeting

There are at least three methods by which the lighter citrus soils of Florida may be improved, and by which reserve plant food may be stored and retained in the ground. The grower who employs all three of these methods will be the one who produces fruit of the best quality and, in the long run, for the least money.

The first of these methods is by the growing and plowing under of leguminous cover crops. If one were a preacher he would be tempted to take advantage of the occasion to preach a sermon to this gathering, using as a text a passage taken from Mark Twain, which reads about as follows: "There has been a great deal said about the weather, but very little has ever been done about it." By substituting the words cover crops for the word weather this would make a fine subject for a sermon to the majority of our citrus growers. In spite of the fact that everyone knows that cover crops are of great benefit in securing better yields and profits, comparatively few are taking advantage of this knowledge in order to profit by it. Many and varied are the excuses offered as reasons why leguminous cover crops are not grown. Here are a few of them:

"The seed cost too much money." The seed will not cost as much as the value of commercial fertilizer that will leach through soils lacking in organic matter, or even as much as the value of nitrogen stored in the soil by the crop itself.

"I waited until summer and could not find any seed." This is not an excuse but merely shows that the user is in the habit of waiting too long to get into action. Seed for cover crops should be bought during the winter before the supply is exhausted and the price becomes high.

"I tried once and did not get a good stand." One who is unwilling to try, try and try again finds this world a tough place in which to live anyway.

"It is too much trouble to plow under a heavy cover crop." It is too much trouble to spray with a lot of high weeds in the grove." Those who are hunting for trouble can usually find it anywhere.

"I am afraid of pumpkin bugs." It is true that pumpkin bugs are sometimes troublesome, but they may be controlled by watching for the development of the young ones in late summer or early fall and cutting the crop before they develop into adults.

Two excuses are indeed original and need no comment. They are, "The red bugs are too numerous," and "I am afraid of snakes."

A second method of improving soils is by the application of organic materials such as stable, dairy and poultry manures, and muck. Stable and dairy manures seem somewhat costly by the time one pays the freight, hauling and applying, but are a very good investment nevertheless. The supply is limited but can be obtained in car lots from Jacksonville and Tampa, and in smaller quantities from local dairies, etc., in many parts of the state. One application of from five to ten tons per acre will give beneficial results for a number of years. Muck is valuable if one has his own source of supply near enough to be hauled without too much expense. Composts of manures and muck are perhaps more valuable than either material alone.

A third method of building up the soils is by the use of organic materials in commercial fertilizers. This statement will perhaps start considerable controversy, since some of our most prominent authorities advise against it, but is based on observations made over a period of years in various parts of the state. As a concrete example there is a grove in Polk county on average soil of the Ridge section where nothing but organic sources of ammonia have been used for the last four applications and very little inorganic ammonia used any time for the last three years. The fruit now being harvested is of the best quality ever grown by the present owner. The trees are in the best color and condition, and are loaded with a new crop. The grower, by the way, also grows leguminous cover crops and has applied stable manure. One of the objections voiced against the use of organic sources of ammonia in commercial fertilizers is that the action is too slow during dry or cool weather. Perhaps this would be the case if one were to change suddenly from strictly chemical sources to organic during such periods, but after the persistent use of the latter over a long period there will be a stored-up supply of decayed, available plant food that will carry on through any season. The extra price is another consideration. The difference in cost between a strictly chemical formula and one made up largely of organic materials will range from three to fifteen dollars per ton, depending on the particular formula used; but the actual value to the grower is believed to be far more than this; and those who have given the matter a fair trial have found that fewer tons of the organic fertilizer will be needed. One reason for this being that the materials are not soluble until after they have thoroughly decomposed, and as this process of decomposition is gradual there is at no time a great amount of soluble nitrogen present to be leached away by heavy rains.

It is very easy to tell people why and how to do certain things, but very difficult to get the messages across in such a manner that it will arouse them to the point where they will really do them. It is only by doing things, rather than talking about them that actual results will be accomplished. To the grower who believes that his land is in such condition that it needs no improvement this subject will have no appeal, but if only a few of the many who know that their own groves need improvement are aroused to action by these few and rather inadequate remarks then this small effort will not have been made in vain.

A South Dakato statisician has figured that all the gold and silver mined in the world is equalled in value by the eggs and poultry produced in the United States alone.

New iron pots and pans can be tempered by filling with cold water and heating slowly to boiling temperature. Then allow the water to cool in the vessel.

Hat pins with heads broken off and stuck through candles keep the candles in shape during hot weather, says Miss Bertha Henry, home demonstration agent in Okaloosa County.

Citrus Fruits, By Product

Citrus By-Product Situation In California

By C. G. Church, Laboratory of Fruit and Vegetable Chemistry United States Department of Agriculture, At Florida State Horticultural Meeting

Wherever citrus fruit is produced and marketed in any quantity, there arises the problem of the disposal of cull and off-grade fruit. That an attempt to sell this in competition with first-grade fruit is a mistake is believed by many growers and marketing men. On the other hand, the cost of growing this fruit is as great as growing that of good fruit, and the grower is most certainly entitled entitled to some return on his labor and investment.

With the idea of helping to solve this perplexing question, the Bureau of Chemistry of the United States Department of Agriculture established in Los Angeles, in 1913, the Citrus By-products Laboratory. This laboratory studied ways and means of turning this cull fruit into profitable by-products, and, we believe, has stimulated and helped pave the way for the present activity in this field.

In 1913 very little in the way of citrus by-products was manufactured. In 1926 there was produced approximately 2,000,000 pounds of citrus oils, several tons of pectin, thousands of gallons of concentrated orange juice, and hundred of tons of cattle food. The lemon by-products alone represent the utilization of 3,000 cars of cull and off-grade fruit.

In California about 15,000 cars of lemons are produced and the culls and off-grades from these constitute one of the chief sources of citrus by-products.

One of the first lemon by-products to draw attention was citric acid for the reason that processes of manufacture were fairly well known and the market for it was established. This acid is chiefly used in the drug and soft drink trade. Practically all of it produced in California is manufactured at Corona by the California Fruit Growers' Exchange, which maintains at this place a central plant for the utilization of all the cull and off-grade lemons from its affiliated members. Some of this fruit is shipped from as far south as San Diego and from as far north as Tulare County.

Another by-product from the lemon to receive early attention was lemon oil. This article has been manufactured for a number of years and the market for it was firmly established. The largest users of it are the flavoring extract manufacturers, bakers, and confectioners, and the drug business. Both distilled and cold pressed oils are produced, the former when only favorable combinations of low-priced raw materials and high-priced finished product exist. The pressed oil has long been manufactured by the Italians, but this is done by cheap hand labor which is an impossibility in this country. It was, therefore, necessary to devise mechanical methods which would turn out an oil that could be marketed in competition with the Italian product. This is accomplished mainly by crushing the fruit and then separating the oil from the resultant liquid by means of high-power centrifuges.

A more recent development in the citrus by-product industry is the production of pectin. As you all know this has made itself well known, particularly to commercial jelly makers because of its power to cause jellying. At any rate there appears to be an increasing demand for this product, and the research being done in this field justifies the belief that new uses will be found for it.

An entirely separate unit for the conversion of cull and off-grade oranges into by-products has been established by the California Fruit Growers' Exchange. Until last fall it was located in San Dimas, but lack of room to expand necessitated an entirely new plant. This was built in Ontario only a short distance from the old location and at a cost of approximately $200,000. Here enough ground has been acquired and the building has been constructed in such a way as to allow for future expansions. A series of by-products, consisting of distilled and cold-pressed orange oils, orange juice concentrate and cattle foods, are manufactured at this plant.

The juice of the orange is burred out by hand operators on power machines and after concentration it is bottled or shipped in large lots in glass lined tanks. This concentrated juice is used largely as a base in the soft drink trade. The peel is put through a special process by means of which the cold-pressed oil is recovered and the remaining oil obtained from the residue by distillation.

This final product resulting from the distillation of the oil is one of the interesting developments in the citrus by-products industry. It has been converted from a troublesome, offensive waste product, costly to dispose of, into an item of profit. Analysis of and feeding tests with this waste indicated some value as a cattle food. That it is an article of value is shown by the price—$3.00 per ton of wet material, f. o. b. the plant. This material is also dried in rotary driers and sold for chicken feed.

Although the California Fruit Growers Exchange is the largest single producer of citrus by-products in California, there are a number of other organizations which are playing their part in the utilization of cull and off-grade citrus fruit. Most of them specialize in a single product, like concentrated juice, marmalade, and peel candied and in brine. One of the largest of these organizations is the California Crushed Fruit Corporation of Los Angeles, the product of which is largely concentrated juice. When operating on full capacity this firm uses approximately 60 tons of fruit per day.

Another large producer of juice is the Hyland-Stanford Company, also of Los Angeles, which processes in the neighborhood of 12 tons of fruit a day. This company has started to operate at Forest City, Florida, this season.

Naturally all of this development has not taken place without the expenditure of a very considerable amount of money, time and effort. In order to keep pace it will be necessary to spend even more.

The California Fruit Growers Exchange alone maintains, beside the control chemists at the by-products plants, a staff of five or six research chemists who investigate the possibilities of improvements in processes, development of new products, and the finding of new uses for those already established.

Now, you will ask how much the grower receives for this cull and off-grade fruit. Last year the Exchange returned to the growers $12.00 to $18.00 per ton, and expects in the future to be able to return more.

Spraying & dusting, Citrus Fruit

The Spraying of Citrus Trees on the Ridge

By R. L. Westmoreland, Lake Wales, Fla., At Florida State Horticultural Meeting

The citrus spray season in the Ridge section of Florida generally starts with Lime Sulphur solution, one part to forty of water. It is applied from January first to April fifteenth to the grapefruit trees.

Some growers spray their grapefruit with Lime Sulphur solution, one to forty just before the growth starts and sometimes as strong as one to twenty. But as a general rule the one to forty is sprayed into the bloom to control citrus scab. The mites in general are then beginning to appear and from observation they do not ordinarily endanger the young fruit very much, until after the fifteenth of April. So a good thorough Lime Sulphur spray, one to forty not later than April fifteenth will give a very good control of the mites and will control citrus scab for some growers.

Under ordinary seasonal conditions, citrus scab in the Ridge section does not attack grapefruit very much unless they are in a near ammoniated condition, or are rather young fast growing trees. In other words, a grapefruit tree that probably did not fruit the past year, but was fed just as heavily as the ones that did fruit heavily, are more likely to have scab. Most of us use the Lime Sulphur solution, one to forty, and we think a good control of citrus scab on grapefruit is obtained. However, if you will examine the dark green grapefruit trees that I have just mentioned as being near ammoniated you will see that the Lime Sulphur one to forty did not control the scab on them, but the more normal trees showed us a nearly perfect control.

For the time being most of the Ridge growers are not troubled with melanose control and probably will not be until some years to come as the trees are not yet old enough to be severely attacked with this disease. Now I do not mean to say the Ridge is free of melanose, for it is not, but I was just mentioning that we do not spray for melanose control as growers do in some other sections. Some few growers use Bordeaux mixture alone and in combination with oil, and by this method control citrus scab and melanose with the same spray.

Probably the worst pest we have on orange to fight today is the citrus aphis, and so far there is apparently no efficient control. For the last few seasons, I have noticed that where the cultivation begins early the growth came out before the aphis appeared in any great quantity. So far the growth usually gets by with only slight damage, but the aphis arrives in plenty of time to do considerable damage to the oranges. In spite of the aphis, the young oranges seem to recover and a very nice crop of fruit generally sets.

When is the best time to spray with oil? What is the best oil to use? Each grower has or will determine the best oil and time to spray and under his conditions he is generally the best judge.

From personal observation for the past five years, I find that when September arrives, the Florida red scale also makes its appearance. I find that if you wait until September to spray, that it will take two good oil sprayings, three weeks apart to control it, and in the meantime your trees and fruit suffer considerable damage. On the other hand if you spray with a good oil emulsion, one to sixty, not later than June tenth or fifteenth, you will not be worried to the extent of having to spray with oil again until the next June. The other scales, purple and chaff, especially the purple, does a great deal of damage to our groves, but the spray for the Florida red scale will take care of these scales along with the white fly.

We must not forget the rust mites for they are never at rest and if you do not inspect your groves every week they will russet your fruit before you realize they are even present. When your oil spray has been on a month you can probably safely dust or spray with some form of sulphur for rust mite control.

Some growers claim you can control rust mites with oil emulsion, but so far I have never been able to get over three weeks control with oil, and if you only get three weeks control with oil, and then have to follow with some form of sulphur you run a good chance of burning some fruit if the oil is still present when the sulphur is applied. The average control of rust mites under the general grove conditions will probably not be over six weeks, from June to August and eight to ten weeks during the cooler months.

Citrus Whitefly

Prompt Control Recommended For Citrus Whitefly

The present fall brood of the citrus whitefly is the largest in several years, reports J. R. Watson, entomologist of the Experiment Station. The dry weather during the past spring greatly reduced the amount of the friendly fungi in the orchards, and this is responsible for the increase of these pests. Mr. Watson recommends immediate application of the fall spray to control this pest.

The whitefly is usually closely associated with purple scale, and together they are among the worst insect enemies of the citrus grower in Florida. The adult whitefly is a small fly-like insect with two wings covered with a mealy wax which gives the fly its white color.

The whiteflies suck the sap from the trees, checking growth and fruit production. They secrete a sweet substance called honeydew which grows a black fungus known as "sooty mold." This substance covers the leaves and fruit, making it necessary to wash the fruit before it can be marketed. The sooty mold also furnishes a refuge for the crawlers of scale-insects.

These insects are controlled by spraying with an oil emulsion. Spraying should be done twice a year, in spring and in fall. Two formulas are given by Mr. Watson for preparing an oil emulsion. The following emulsion is the cheaper and is made by mixing the materials and boiling: 2 pounds soap; 2 gallons paraffin oil; one gallon water. Where it is not possible to heat, use the following: 8 pounds whale-oil soap; 2 gallons paraffin oil; one gallon water. Use 2 gallons of this in 100 gallons of water. Either of these sprays will control the purple scale as well as the whitefly.

Oats, rye or rape will make a good grazing crop this winter. Plant them the latter part of September or later.

Growers & Shippers League, Fla.

Work of Growers and Shippers League

Secretary J. Curtis Robinson of the Florida Growers and Shippers League has issued a statement which is particularly interesting to Florida growers of fruits and vegetables, coming as it does just at the opening of the winter shipping season. Among other matters of interest discussed by Secretary Robinson are the following:

Line Haul Rate Case

No information is obtainable as to when decision by the Interstate Commerce Commission may be expected in the Line Haul Rate Case. We are encouraged by several decisions which have come out by the Commission indicating their continued approval of the basis of rates applicable from southwestern territory as ordered by them in Southwestern Investigation, 123 I. C. C. 203,464. The scale of rates ordered by the Commission to be applied from the Southwest, which is a higher rated territory than the southeast, were lower than the rates which we recommended to the Commission to be applied from Florida.

Some interesting statistics showing total car loads of Revenue Freight loaded in the "Southern District", as reported by the American Railway Association of Washington, D. C. shows that while the total car loadings in the U. S. were less in the weeks ending August 20th, August 27th, and Sept. 3rd, 1927 than corresponding weeks in 1926, the car loadings from the Southern District which includes Southeastern Territory were in excess of the carloadings for the same weeks in 1926. This also shows while the car loadings in the U. S. were less during the weeks ending August 13th, August 20th and August 27th, 1927 than corresponding weeks in 1925, the car loadings in the Southern District were in excess of the car loadings during the same weeks in 1925.

Refrigeration Hearing

The Fourth Hearing on Refrigeration rates on citrus fruits and vegetables, melons and Berries, in which the carriers are attempting to increase the rates, began in Washington, D. C. September 19th before Director Bartel of the Bureau of Service and Examiner John L. Rogers of the Interstate Commerce Commission. Commissioner Eastman sat with the Director and Examiner thru most of the hearing.

The League was represented by its Counsel C. R. Marshall, of Washington, D. C. and H. J. Wagner of Norfolk, Virginia and J. Curtis Robinson, Secretary.

The State of Florida was represented by Theo T Turnbull, Counsel, J. H. Tench, Rate Expert and Fred Pettijohn, Expert Accountant.

The Joint Counsel was represented by Fayette B. Dow, Counsel and Mr. Crane, Assistant Counsel. The Georgia shippers by Mr. MacAsbill, Mr. E. S. Briggs represented the A. F. & V. S. A.

The carriers were represented by Mr. Henry Thurtell and Mr. W. J. Brantley as counsel.

At the opening of the Hearing Mr. Thurtell, Counsel for the Carriers stated they expected to present testimony with about 39 witnesses. On the first day Mr. Leroy Price, Jr. Accountant for the Bureau of Accounts, presented supplementary exhibits to those previously presented by him in the hearing at Jacksonville, Florida. Carriers then cross-examined Mr. Price of the Bureau of Accounts and Mr. Smith of the Bureau of Service upon their evidence presented at the first hearing in Jacksonville.

Testimony for the carriers was then introduced by Mr. Shorter, Comptroller for the Fruit Growers Express, Mr. Anderson, Refrigeration Engineer, of the Fruit Growers Express, Mr. White, for the operating department of the A. C. L., Mr. E. L. Glover, Assistant to the Freight Traffic Manager of the A. C. L. and Mr. W. D. McCaig, Comptroller of the A. C. L. Mr. W. S. Andrews, Assistent Vice President for the Southern Railway, Mr. E. H. Daniel, Superintendent Transportation, Central of Georgia, J. G. Kerr, Assistant to Vice President of the L. & N. Ry., J. L. Sheppart, Gen. Freight Agent, Illinois Central, F. B. Ford for the Florida East Coast Ry. Company and several others, experts in matters pertaining to refrigeration.

The hearing attracted keen interest of refrigeration men from all parts of the country. Besides the Southern and Northern Lines particularly interested, the hearing was attended by Mr. Nelson of the Sante Fe Refrigerator Dispatch, Mr. Carner of Dearborn, Chairman and Elmer Westlake, Counsel for the National Perishable Freight Committee, all of Chicago.

After about two weeks continuous session, the hearing was further adjourned, at the request of the shippers, to give them opportunity to study carriers exhibits, after which shippers testimony will be presented probably in Washington.

Mid-Western Railroad Grants Request of Shippers Top-Icing Privilege

Advice has just been received by the Growers and Shippers League from E. S. Briggs, Manager-Secretary of the American Fruit and Vegetable Shippers Association that the Chicago-Burlington and Quincy Railroad Company has notified the National Perishable Freight Committee to provide in the Perishable Protective Tariff the privilege for shippers to replenish ice on top of loads in the interior of cars at any point on the Burlington System.

This replenishment of ice will be permitted by the Burlington at the shippers' expense, without additional penalty charge, on the basis covered by Rules 242 and 243 of the Perishable Protective Tariff.

The American Fruit and Vegetable Shippers Association has for some time been working with individual lines to secure this privilege of giving additional protection to vegetable shipments, when ice in the bunkers of refrigerator cars becomes low.

The shippers have met with opposition from various carriers but feel indebted to Mr. C. E. Spens, Vice-President of the Burlington Railroad for taking the initiative in making this additional protective service available.

The Service will be applicable from Florida, Georgia, North and South Carolina and Virginia, as well as from 12 western states, including Oregon, Washington, and California.

Boys and girls club work should be available to every farm boy and girl of club age. Money spent in the extension program with boys and girls lays the foundation for a more successful agriculture and a higher standard of farm life.—E. T. Meredith, Former Secretary of Agriculture.

The Citrus Industry

Exclusive publication of the Citrus Growers and Shippers

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Published Monthly by
Associated Publications Corporation
Tampa, Florida

Subscription, $1.00 per year in advance

Entered as second-class matter February 16, 1920, at the post-office at Tampa, Florida under the act of March 3, 1879.

Branch office and production plant, Bartow, Florida.

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GROVE CALENDAR FOR OCTOBER

Timely Suggestions for Grove Work During the Present Month

Make thorough clean-up spraying with oil emulsion or fumigate thoroughly to control whitefly and scale. Be sure to wash sprayer thoroughly as soon as through using.

If cover crop is heavy, mow and allow it to lie where cut (this controls pumpkin bugs).

Make preparations for harvesting, but do not market green fruit.

Pick up and burn all pecan twigs cut off by girdlers.

Plow under cover crops.

Put soil in condition and plant winter cover crop of oats and rye or a mixture of both in pecan groves.

WHAT OF THE CLEARING HOUSE

What of the proposed Florida citrus clearing house?

Is this project, inaugurated with such enthusiasm and launched with such high hopes, to be abandoned without further effort to put it into practical and effective operation?

Certainly The Citrus Industry hopes not. Florida citrus growers and shippers need and long have needed just such co-ordinated effort as would be provided by the proposed clearing house plan. It is to be hoped that the efforts toward successful accomplishment of the aims desired may not be abandoned.

But The Citrus Industry feels that the suggestion of bringing in an outsider to act as "czar" over the Florida citrus industry, was not only premature but also inadvised, particularly since such suggestion came from a rank outsider whose only interest in the industry is, at the very best, that of the promoter, and whose knowledge of the citrus needs is purely chimerical. As The Citrus Industry has previously remarked, when the problems of Florida citrus growers are solved, they will be solved by Florida growers themselves, not by outsiders with little or no knowledge of citrus needs. Outsiders may give valuable aid in planning marketing reforms, but the actual work of perfecting and carrying out those plans must be done by the growers themselves. Secretary Jardine and Mr. Tenny have given the Florida growers and shippers invaluable assistance in outlining the plan for a citrus clearing house, but only those intimately acquainted with Florida citrus conditions can work out the details of the plan in an effective manner.

While we do not agree in its entirety with the following from the Orlando Reporter-Star, it does afford much food for thought:

> The talk about bringing Secretary Jardine to Florida to organize the citrus industry seems to be imaginative rather than realistic.
>
> Secretary Jardine is, perhaps, as good a secretary of the agricultural department as any we have had in the past. Still, that fact would not qualify him as an organizer of the citrus industry. This is an industry that is entirely new to him; he would have to learn it from the ground up. There are several thousand men in Florida who grew up in the industry; they have grown oranges and they have packed and marketed them. It requires a considerable stretch of the imagination to see how Mr. Jardine could be more useful to the industry than these men of long experience.
>
> To add a salary of $35,000 to the marketing end of the game would, most likely, have to come out of the grower; we doubt if it could be so managed as to pass it along to the consumer; consumers are getting so touchy and so wise that they strike back when cost of production is permitted to get so high as to make the product too costly. A wider market seems to be the thing most needed.
>
> Anyone who has followed the orange industry in Florida for the past 20 years must be impressed with the fact that marvelous progress has been made in culture, in quality of fruit, in packing and marketing methods. Growers and shippers have worked together in a better spirit of co-operation than have the growers and marketing agencies of corn and wheat. And the citrus industry is a more profitable industry today than is the corn and wheat industry. This in the face of the fact that since the creation of the agricultural department the secretaries have been selected from the corn and wheat producing states and most attention has been given to those industries. A still closer co-operation betweet citrus growers, and between growers and marketing agencies themselves, will work out citrus problems fairly satisfactory to all.

The Citrus Industry does not believe that Secretary Jardine would accept a call to head a citrus marketing organization, even should such call be made. We believe that Secretary Jardine himself recognizes that the working out of Florida citrus problems is properly within the scope of the Florida growers themselves. Nor do we believe that it is wise to consider the

selection of a man to head the proposed organization until such organization is completed. Certainly no man fitted to head such an important organization would even consider a tentative proposal until he knew definitely the plan which he would be called upon to work out.

As the Reporter-Star points out, there are many men in Florida who have devoted long years to the study and perfection of the industry, and among these men may be found one better fitted perhaps, by reason of study and experience, than any outsider whose only knowledge of the situation is transitory and superficial.

The thing which Florida citrus growers and shippers need, as the Reporter-Star so aptly puts it, is "a still closer co-operation between citrus growers, and between growers and marketing agencies, and between the marketing agencies themselves." That is just what the proposed citrus clearing house would bring about, and that is why The Citrus Industry hopes that the clearing house plan may yet be perfected and put into effective operation with the least possible delay. With such an organization effectively functioning, the citrus industry of Florida would compare favorably with any agricultural or horticultural industry in the land.

LET'S NOT MAKE THIS MISTAKE

Editor Potts of "Better Fruit," a monthly journal published in the interest of the Northwestern apple growers, sees the need for organization among the growers and shippers of apples and much fears that a short crop and high prices will stand in the way of such an organization. He points out that with high prices growers and shippers cannot seem to see the necessity of organization — which appeals to them only in times of over supply and low prices. In this respect, apple growers and shippers seem to be no different from citrus growers and shippers.

Let us hope that Editor Potts' words to apple growers do not apply to citrus growers of Florida who now have the opportunity to put into effect, through the proposed Citrus Clearing House, an organization which holds out greater promise than anything yet devised to coordinate control of citrus shipments and stabilization of price.

Editor Potts says:

> It is a matter of regret to me that apple growers are chanting pretty much in unison: "Light crop! Light crop! Prices will be good!"
>
> Now don't misunderstand me. I do not say I regret to learn our nation has a subnormal apple crop and prospects for good returns to commercial growers. What I do not like are the reactions such prospects bring in the minds of our growers.
>
> Already I begin to expect a cessation of efforts to achieve more businesslike marketing and to disseminate much needed apple-eating propaganda. Oh yes, that happens. It last happened only three years ago, and no mathematical wizard can compute the loss our growers have since sustained because—all because a light crop and better-than-average prices completely sidetracked a movement for more scientific marketing.
>
> "Light Crop; good prices; prosperity ahead," is the hypnotic chant of Old Satan himself, originated to tempt our growers back into a wilderness of disorganization for another period of aimless meandering.

Heating Citrus Groves Pays

The experience of growers in Florida has proven conclusively that heating citrus groves is the most dependable form of crop insurance. Even when the fruit has been picked and shipped the use of heaters safeguards your grove against damage to trees and consequent reduction or possible loss of future crop.

Scheu National Baby Double Stack Heaters, price $1.30 also made in nine gallon size at $2.50.

Heaters a 10 Year Investment

Records of Scheu National Orchard Heaters lasting 10 years, and even 15, are not uncommon. Season after season, mild winters and cold, they stand sentinel like ready for use on an instant's notice.

Jumbo Heater 9 gal. capacity the successful heater for Citrus Growers - Price $3.75.

The Heater for Citrus Growers' Use

The most successful results in heating citrus groves have been attained with the Jumbo Heater. It gives maximum heat with minimum attention. Bowl contains nine gallons—sufficient to burn all night without refueling.

This is the heater recommended by the Sunkist Growers Committee and their Purchasing Company. Time tried, tested, proven—it has a long record of successes.

The Double Stack Heater pictured at left has been successfully used by growers of citrus crops.

Place Orders Now For Fall Delivery

Rememeber orchard heaters are manufactured only on order. Unless you place your order now, you are in danger of being disappointed—with the heavy purchase of heaters being made this year, it behooves every grower to place his orders NOW. Write for 56 page booklet, "Frost Protection."

All prices are F. O. B. Toledo.

Scheu National Orchard Heater Company

Distributors of Heaters Manufactured by American Can Co.

J. E. Palmer, Florida Sales Manager, Haines City, Florida

Choice Territory Open for Local Agents

THE OUTLOOK

Well informed students of the citrus industry are agreed that the season just opening should be one of profit for growers and shippers of citrus fruits. This view seems to be justified if no untoward circumstance intervenes and if growers and shippers will but keep their feet on the ground and not attempt to force the market or attain exaggerated profits through devious marketing methods.

That there is a short crop in Florida, no one well posted on the situation will deny. Just what this crop will be is of course problematical. No one can tell with accuracy at this time of year. However, best posted authorities are agreed that fourteen million boxes may be accepted as the highest possible limit for carload shipments. From this figure estimates range down to twelve and one-half million boxes. This estimate is made by C. W. Lyons, one of the most accurate estimaters of the Florida crop in years past. In this estimate, however, Mr. Lyons takes no account of the late bloom fruit, which no one may hope to definitely estimate. A. M. Pratt, including the late bloom in his figures, places the car lot shipment for the coming season at a maximum of thirteen and one-half million boxes.

Based on car lot shipments, it is estimated that Florida's season shipments will be 7,000 cars short of last season's shipments. The California shortage is placed at 14,000 cars, or a total of 21,000 cars less of citrus fruits to be marketed by the two states than last season. This in itself should guarantee fair returns for the grower. In addition to this shortage in citrus itself, there is a very heavy shortage in the apple crop, which is a directer competitor of citrus.

In view of this shortage and the constantly growing demand for citrus fruts, it would seem that the season's outlook for the grower is the best for a number of years.

Florida may get by and make a little money for growers this season without a citrus clearing house, by reason of a short crop here and in California—but with a normal crop next year or the year after, won't we wish we had prepared to meet the emergency?

With a short crop, the grower of poor fruit may be able to realize some kind of a profit from this crop, but at that it will be the grower of quality fruit who reaps the greatest reward.

Fertilizer, insecticide and fumigation bills are much less costly than a crop of poor fruit achieved through the practice of false economy in the grove.

Money spent for fertilizers and insecticides frequently spells the difference between profit and loss when your final grove returns are in.

Rust mites never helped a grower to attain top prices for his fruit.

Fruit of poor quality buys no eight-cylinder cars.

It's Soda - *not* Luck!

that keeps citrus trees in good condition through the winter.

THE surest way of helping your citrus trees resist the cold and go through the winter in good shape is to see that they are well fertilized with Chilean Nitrate of Soda. You can't expect a starved tree, any more than a starved horse or cow, to stand up under stress.

Remember that it puts a heavy drain on your trees' vitality to carry a crop of fruit through the fall and winter months. Plenty of *available* nitrogen is needed to keep this crop in good condition and also to prepare for and produce another crop of bloom.

If you have not yet given your trees a fall feeding of Nitrate of Soda, you can still profit by applying two to three pounds of soda to each tree. The nitrogen in Chilean Nitrate of Soda is *all immediately available* and will begin to take effect as soon as applied. Prices are low and stocks are plentiful. Order your season's supply *now* and be sure.

Information on how to use Chilean Nitrate of Soda with greatest profit on citrus trees will be sent on request—no charge or obligation.

Chilean Nitrate of Soda
EDUCATIONAL BUREAU

Dept. 25 A *Orlando, Florida*

Citrus Fruit Jours

Miscellaneous Notes On Things Citrus

By W. W. Yothers, and O. C. McBride, Bureau of Entomology, Orlando, Fla., August 17, 1927

Rate of Evaporation of Russet Fruit

Some years ago attention was called to the difference in the rate of evaporation in russet and bright fruit. The figures were published in United States Department of Agriculture Bulletin 645 in 1918.

The fruit experimented with from 1915 to 1918 was grown on high pine land and the skin was thicker than that on fruit grown on the Indian River. The methods of weighing were only exact from a commercial standpoint. Large scales were used and large quantities of fruit were employed in each test.

The paragraph from Bulletin 645 follows:

"The rate of evaporation of the juices is also much greater in russet fruit than in bright. From January 30 to April 7, 1915, 24 bright grapefruit lost 4.7 per cent and 24 russet lost 13.6 per cent from evaporation. During the same time 51 bright grapefruit lost 5.9 per cent, and the 51 russet lost 9.5 per cent. One box of bright oranges lost 10.4 per cent, and another box of russet containing the same number of fruits lost 15 per cent. Another box of brights lost 14.8 per cent by evaporation and the box of russet lost 17.9 per cent. In one box of half brights and half russets the brights lost 17.4 per cent and the russets 21 per cent. In one box of brights the loss from evaporation was the same as that sustained by the russet box."

Last winter, 1926-1927, it seemed advisable to make some exact tests with Indian River fruit or fruit with a very thin skin. The weight was correct to one ten thousandth of a gram. The detailed results will be published in a more technical journal and the summary only is given here. All the fruit weighed were from the same tree.

Percentage Loss in Weight

	Brights %	1-50% Russet %	51-100 % Russet %
Loss after 10 days	2.20	5.79	6.14
Loss after 20 days	5.56	11.02	12.41
Loss after 30 days	9.76	4.54	19.22

Ave. weight of Bright Fruit	Ave. Weight of 1-50% rusty fruit	Ave. weight of 51-100% rusty fruit
181.3082 gms.	171.6182 gms. 4.8% less than brights	153.0500 gms. 15.6% less than brights

The fruit that was from 1 to 50% russet lost much more in proportion than the fruit that was classed as from 51 to 100% russet. The average weight of the fruit should be noted. If the loss from rust mite injury, while the fruit is still on the tree, is combined with the loss from evaporation for 30 days after it has been picked the results are most striking. The brights lost 9.76%; those with 1 to 50%, 19.34%; and the russets, 51 to 100%, 34.82%.

Quantity of Sulphur on Foliage Following Rain

It has been known for many years that a good rain would wash off most of the sulphur applied as a dust for rust mite control. The data, however, was observational. It was thought advisable to obtain exact or quantitative data on this point. For this purpose, four trees were dusted with different kinds of sulphur. The dusting was done June 19, and rain of .20 inches fell June 21. To obtain the results, 100 leaves were taken from each plot and the quantity of sulphur determined on them by chemical analysis. The detailed results will be given in a technical bulletin. A summary is here given.

Quantitative Determinations of Dusting Sulphur on Citrus Foliage

KIND OF SULPHUR	GRAMS OF SULPHUR ON 100 LEAVES JUNE 19,'26	JUNE 21,'26	JULY 1,'26	% found after frist rain
Flowers of Sulphur	0.1121	0.0081	0.0070	7.2
Flours of Sulphur	0.1043	0.0130	0.0002	12.4
Ground Sulphur 92 S 8% Lime about 200 mesh	0.1566	0.0076	——	8.8
A Commercial dust with sticker	0.1943	0.0136	0.0001	7

It should be observed that three of the sulphurs had almost the same quantity of sulphur after the first rain. The other one had a considerable quantity more than the other three which was, no doubt, due to the larger particles of sulphur composing the material. We hesitate to say that the difference has any value in rust mite control. The results certainly indicate that so far as adhesive properties are concerned, they are all about the same.

Dusting With Sulphur Following Oil Spraying

It has been known for at least 17 years that oil emulsions have considerable effect in keeping down an infestation of rust mites. Owing to this fact, it never occurred to us that any citrus grower would follow the spraying with an oil emulsion immediately with an application of sulphur dust for rust mites. We learn, however, that certain growers have done so. These growers reported that injury to the fruit developed. It was deemed advisable to test out the effect of sulphur following oil emulsion. On May 9, two rows of Valencia trees were sprayed with a so-called red oil that has been commonly used for spraying citrus trees for many years. Two rows were also sprayed with a good grade of so-called white oil. The lubricating oil was used at 1.25% actual oil and the white oil at 1.5%. The maximum temperature was above 92° F. each and every day. Five days afterwards, the entire four rows were dusted with commercial dusting material containing about 92% sulphur and 8% hydrated lime. We used an excessive amount of dust. Examinations were made on May 21, June 6 and 14 and no evidence whatever was present, to indicate that any injury had been done. There had been no rain until June 5 when 13|100 of an inch fell.

On May 19, two rows of Valencias were sprayed with the same lubricating oil as was used on May 9, and also two rows with a high grade white oil. Both oils were used at exactly 1½% of oil in the spray material. Within 20 minutes after the spraying, a sulphur dust application was made to one row each of the red oil and white oil. While the temperature was not excessive on the day the materials were applied, it reached a maximum of 102° F. before June 14, the date of the last examination.

On May 21, the fruit was covered with a film of oil overlain with a layer of sulphur. There was not the slightest indication of injury. On June 6 and 14, there was severe injury to the fruit on the rows dust-

Continued on page 29

CITRUS COMMENTS

—BY—

Charles D. Kime, Orlando, Florida

This department is devoted to furthering horticultural interests of Florida. Letters of inquiry, discussion or criticism will be welcomed.

Tangerine cultivation

Sizing up Tangerines

It has been customary in the Fall of the year for the grove owners to attempt to size up their tangerine crop by means of a special application of some suitable ammoniate. Nitrate of Soda has been used for this purpose until the practice has become almost standardized. Tangerine trees will become over-ammoniated, but where any reasonable allowance is made for this Nitrate applied in the special application of Nitrate of Soda, in subsequent applications no harm to the trees has resulted.

During the present season many groves carry such a small crop of tangerines that no nitrating is justifiable. However, if there is a reasonable amount of fruit, application of from one to three pounds should be made and made very promptly, as the time in which the crop may be sized up is growing short.

The Nitrate of Soda is applied in the same manner as any fertilizer material and after application can be harrowed in, though being a chemical form of fertilizer, harrowing or other cultivation is not necessary. This is especially true where rains occur within any reasonable time. Quicker action would, of course, be secured by harrowing or other cultivation, especially if the weather remained dry, though the idea in any grove work is to cut down cost of production as far as possible, therefore if the harrowing can be eliminated it would be wise to do so.

The attention of the growers is being attracted to the use of synthetic Nitrates of various forms and among them undoubtedly there will, in time, be certain forms as desirable to use and as effective as Nitrate of Soda in the above work. Several brands of different chemical composition have been placed in use in fertilizing work during the past two years, and more information will be available in a short time.

Early Ripening

In the minds of many, early fruit has always been a very desirable possession, and this attitude of mind has grown rapidly during the past five years. So rapidly, in fact, that we find a decided impetus in the planting of citrus varieties as distinguished from the planting of mid-season varieties. Along with this change in idea there has continually been a desire to ship fruit from mid-season groves earlier than its maturity would permit. All growers are familiar with the acute condition that finally gave rise to State legislation, now three years standing, looking toward the prevention of the shipping of green fruit.

From the marketing standpoint, early ripening has been desirable. It has been attempted in a number of different ways. Spraying with an Arsenate of Lead came into existence some time back and proved so detrimental to the grove and also created in the minds of the consumer the idea that the fruit might be poisonous that the process was legislated against and will undoubtedly be discontinued. Fortunately with citrus an Arsenate is unnecessary for the control of any pest or disease. Therefore, we are fortunate in being able to dispense with it.

No other form of spray has been found effective in its effect on fruit quality. There have been cases reported where fruit quality varied following spray applications, but no consistent results have so far been observed and therefore we can definitely state there is no spray at the present time which can be safely recommended for early ripening.

Starvation

From time to time growers have neglected their properties, and as a result a crop has matured with comparitively little attention or care. It is often the case that such fruit will pass an acid test quicker than the average well cared for grove, but, along with this, there is always a serious loss of fruit crop the succeeding season, and often also a serious tree injury, so no sane grove owner could think of obtaining early ripening in this manner.

Fertilizer

With the constantly increasing knowledge regarding fertilizers, it is proving more and more easy to influence fruit quality. There is a decided belief in the minds of some that acidity may be reduced by some special fertilizer process or that the fruit may actually be ripened earlier by some suitable fertilizing process. There is decided grounds for such a thought to have a sound basis, but the process is one that cannot be attempted without a very intimate knowledge of a specific property and the fertilizer which is used on it. It seems probable at this writing that within a few years specific recommendations can be made that will actually give results in hastening the maturity period, but the results obtained to date have been too irregular and unsafe for any general recommendation to be attempted.

Variety

Real results have been secured by the planting of early maturing varieties and with the additional planting that will be made during the next several years, Florida will have extended its shipping season into September. Parson Browns have, of course, been known for a good many years, and have proved highly remunerative to those grove owners possessing bearing groves. The more northernly part of the Citrus Belt has consistently produced a better quality Parson Brown than has come from the southern part of the belt.

The Parson Brown is still in the lead as an early variety. However, several other varieties are considered favorably, among which may be mentioned Hamlin's Improved and the Jaffa. However, until more definite information is secured, a prospective planter of a grove will do better if he secures the best strain of Parson Browns available, until such a time as his own information enables him to reach a personal conclusion.

As a summary we can say that early ripening is best secured by the maturity of an early ripening variety, and that while results have been secured along the other lines mentioned, they have proven too unsatis-

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BLUE GOOSE NEWS

Monthly News of American Fruit Growers Inc. *Edited by The Growers Service Department*

VOLUME 2.—No. 5. ORLANDO, FLORIDA, OCTOBER 1, 1927 PAGE 1

RAILROADS LET THE CAT RIGHT OUT OF THE BAG

The Bureau of Railway Economics is maintained in Washington by the American Railway Association. It employs a large statistical force, and makes studies of various problems which from time to time are brought before it.

A recent bulletin issued by that organization has been given wide publicity by various newspapers in Florida and elsewhere which received extracts of that bulletin, presumably sent to them by Bureau itself. As might perhaps be expected the contents of this bulletin, as of one issued a few months ago from the same source, apparently are calculated to prove, firstly, that the marketing of Florida citrus fruits is a most haphazard operation, secondly, to prove the entire reasonableness of existing freight rates and further that the costs of transportation have little if any bearing upon Florida's marketing problems.

Analysis of the bulletin itself, as issued direct from the offices of the Bureau of Railway Economics, by J. R. Crenshaw, traffic manager of the American Fruit Growers Inc. at Orlando shows this bit of propaganda by the carriers, however, to contain in itself perhaps the fullest admission of the justice of the complaints made by Florida growers and shippers against the existing freight rate structure which could possibly be asked.

The bulletin covers a period from November 2, 1925 to Apral 30, 1926. This is not a full season's shipping, and just why this period was selected is not made clear. However, it is sufficiently typical to be of value.

Mr. Crenshaw points out that this bulletin, with its accompanying map, constitutes the fullest proof of the contention of Florida shippers that the present freight rate structure tends constantly to crowd the distribution of Florida oranges and grapefruit up against the Atlantic Coast; and only serves to emphasize the justness of their request for a new structure which will allow them to go further and further westward, in open competition with fruit from other producing districts.

The bulletin covers the distribution of Florida oranges only during the period named. Mr. Crenshaw points out that this bulletin shows a total of only 593 carloads of oranges going to the twenty-two states comprising the entire country West of the Mississippi River during this period. Of these 524 carloads went into those states which border upon the Mississippi River. West of these states Texas was the only commonwealth to receive any appreciable quantity of oranges, and only 59 carloads went to Texas. Then Kansas received 4 carloads, Nebraska got 4 carloads and Montana received two carloads. This is held to demonstrate very clearly how tight the country West of the Mississippi River is closed to Florida oranges by the freight rate structure against which Florida shippers are contending.

On the other hand this same bulletin shows Florida to have sent to the 12 states bordering on the Atlantic Coast during this period a total of 6,502 carloads, or more than ten times as many oranges as went to the entire country West of the Mississippi River. Distribution of population alone cannot possibly account for this wide disparity in the distribution of oranges.

The remainder of the 19,486 carloads of oranges dealt with in this bulletin were taken by the states in between the Atlantic Coast states and the Mississippi River. The bulletin shows that 96.6 per cent of Florida's oranges during this period went to states East of the Mississippi River; 3.1 per cent were taken in the whole territory West of the Mississippi River, and that three-tenths of one per cent went to Canada. This bulletin, however, does not include figures upon 1,220 carloads of tangerines shipped during the same period. All of these went to destina-

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OUTLOOK IS EXCELLENT AT START OF SEASON

By F. L. Skelly

Citrus shipments from Florida started this season in volume somewhat earlier than a year ago. Up to October 1st practically all the shipments were of grapefruit with but a few cars of oranges. However, right after October 1st orange shipments started, and by the middle of October they should be going forward in some volume.

Opening prices on both oranges and grapefruit are very gratifying. While some fruit of inferior quality sold at moderate prices the f. o. b. prices and auction prices were highly satisfactory up to October 1st. We can see no reason why good prices should not prevail throughout the month of October on both oranges and grapefruit as shipments must necessarily be moderate.

California is cleaning up its Valencias quite rapidly; and they are selling at excellent prices.

Weather conditions throughout Florida have been unfavorable to the fruit situation. On account of the dry weather prevailing, a number of groves are showing wilt; and it is going to take considerable moisture to produce fruit of the right quality. However, it is hoped before this appears in print we shall have had enough rains to start us into the winter in good shape.

Shipments of Porto Rican grapefruit have been heavy but we believe from this time forward they will be considerably lighter in volume.

There have been various estimates made of the Florida crop, but up to the present no official estimate has been put out. Last season there were approximately 44,000 cars of citrus fruit shipped from Florida, but the guesses that are being made on this season's shipments vary from 4,000 to 10,000 cars less. In other words, the estimates are there will be from 4,000 to 10,000 cars less fruit shipped this year, including both the

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Adv.

BLUE GOOSE NEWS

OFFICIAL publication of the American Fruit Growers Inc., Growers Service Department, published the first of each month in the interest of the citrus growers of the state of Florida.

EDITORIAL ROOMS
502 Yowell-Drew Building
ORLANDO, FLORIDA

RAILROADS LET THE CAT RIGHT OUT OF THE BAG

Continued from page 1

tions East of the Mississippi River, and would materially affect the percentages quoted.

"When the Florida orange industry had its early beginnings," says Mr. Crenshaw, "shipments were by coastwise steamers and the entire market lay along the Atlantic Coast. With the growth of the industry markets naturally had to expand, but the present freight rate structure still continues to follow the old structure laid down at the beginning of the handling of Florida fruits by rail carriers. It still pushes our distribution right up against the Atlantic Coast. We get westward a little way at some financial sacrifice; but the great bulk of the geographical area of the continental United States is closed territory to Florida oranges. The only reason we can sell some grapefruit in that territory is because we have a highly superior article and the people in parts of the western territory are willing at times to pay high transportation charges upon our grapefruit in order to enjoy that superior quality."

Florida shippers are still asking for relief from the present antiquated structure of freight rates. Whether this relief will be granted or not is a question now under the consideration of the Interstate Commerce Commission after having heard voluminous evidence.

"Why shouldn't we have the privilege of selling oranges competitively in Denver," ask Florida growers and shippers, "when Denver is eighty miles nearer to Winter Haven than St. Louis is to Los Angeles?"

SET RECORD BUILDING NEW MAITLAND HOUSE

What is believed to be a record was achieved in the construction of the new packing house of the American Fruit Growers Inc. at Maitland, which replaces the one there destroyed by fire.

Just five weeks and three days after ground was broken the house was completed, machinery installed and tested, and but for a few minor preparations the house was ready to operate. J. A. Byington of the packing house department and P. W. Rogers, manager of the Maitland house have come in for congratulations for the achievement.

The new house is of five cars daily capacity. It is of monitor type of construction, permitting a maximum of light and air for the comfort of workers and the sanitary handling of fruit. It stands upon the site of the old house on the A. C. L. tracks in the center of Maitland, a short distance from where the main highway passes through. Fruit from the Maitland house, which was the first packing house put into operation in Florida after the organization of the American Fruit Growers Inc., long has enjoyed an enviable reputation in the markets.

Completion of the house has been hailed with appreciation by many growers within the territory served, who now look forward to a resumption of their former satisfactory marketing arrangements which were disrupted when the former packing house was destroyed.

OUTLOOK IS EXCELLENT AT START OF SEASON

Continued from page 1

normal and late bloom, than were shipped last year. With the apparently lighter crop both here and in California, if our fruit finishes up properly and we have normal weather during the season, there is no reason why excellent prices should not be obtained on the entire citrus crop produced in Florida.

With the shorter crop of apples in sight, and the much better prices at which apples are selling this season, there should be a beneficial effect on prices for citrus fruits. While other deciduous fruits will be in heavy supply for the next four weeks, barring some disaster to the crop, we have every reason to believe that good citrus fruit, even in competition with a considerable quantity of deciduous fruits will bring highly satisfactory prices.

As we see it now there need be fear of but one factor which is within the control of Florida growers and shippers. As the season progresses we shall need to be careful to see that the normal bloom fruit and the late bloom fruit do not become mixed in the picking. If this is watched carefully we should be able to maintain our markets at prosperous levels practically throughout the season. If however, picking operations in some sections are handled carelessly and late bloom fruit arrives in the markets all mixed through the earlier and fully matured fruit is is certain to cause a discrimination against the Florida product which will be costly to the Florida industry.

It would seem that this year the normal and the late bloom in most sections were sufficiently separated that only ordinary care should be necessary to keep them separated in the picking. Therefore with a general realization of the benefits which should follow entire separation, it would seem this should occasion but little worry.

ORANGE JUICE NOW FOR BRITISH SAILORS

For generations sailors in the British navy have been known as "limeys" from Greenland's icy mountains to the Bay of Bengal. That has been because of regularly issued rations of lime juice, with an accompanying tot of rum, which they have partaken as a precaution against scurvy and similar diseases apt to follow a monotonus diet.

Now all that is changed. Recently issued regulations from the British admiralty substitute orange juice for the long orthodox combination of lime juice and rum. Extended research by British medical authorities is responsible for the change. Orange juice has been found to be actually superior to lime juice as a preventive for scurvy, and in addition orange juice has been found to possess a nutritive value which lime juice lacks.

The latter reason accounts for the omission of rum from future rations. For the time being there is said to be considerable anguish of mind in the

Adv.

Visitors to Florida expect to find us enjoying many cooked dishes utilizing citrus fruits. Too often they are disappointed. In failing ourselves to utilize our oranges and grapefruit most liberally we are overlooking a very great opportunity. For those visitors who try such dishes here are going to want them again after they have returned home; and in proudly displaying their knowledge they can do us invaluable service in spreading the use of our citrus fruits in cookery.

Here is a recipe for an orange omelet that is truly good eating.

2 Florida oranges

3 eggs, ½ tablespoon butter, 2½ tablespoons orange juice, 2 tablespoons powdered sugar, 1 teaspoon lemon juice. A touch of salt.

Begin as with an ordinary plain omelet, using the seasonings as indicated above. Remove skin of the oranges separating the natural segments, which slit and remove seeds. Fold in one-half of the orange segments sprinkled well with powdered sugar. Put the remaining segments well sprinkled with powdered sugar around the omelet. Serve hot. Serves four persons.

enlisted ranks, because of the absence of the rum. The sailors are said to admit a prefrence for the orange juice over that from limes; but the rum portion of the ration was so great a part of the institutions of the British navy that its passing is accompanied by emphatic protests.

No orange grower, however, but realizes how much better off John Bull's sailormen will be when once they become accustomed to the change.

CALIFORNIA VALENCIA ACREAGE INCREASES

Citrus acreage devoted to commercial production of oranges, lemons and grapefruit in California increased by 6,014 acres during the past year, according to figures computed from the recently issued report of the federal and state cooperative crop reporting service.

That is, today there are 259,909 acres of land devoted to the growing of oranges, lemons and grapefruit as against 253,895 acres a year ago.

The chief gain was in oranges and of the valencia variety. And a very considerable portion of the gain was in Orange county. There was quite a drop in the acreage of lemons and the acreage devoted to navel oranges showed a decrease. Grapefruit did show a gain as could have easily been forecast.

In the figures given in the foregoing, the 1926 new plantings are included, while the official forecaster does not include them in his yearly tables but does give the acreages in a side note. This is mentioned because there would be noted a discrepancy of 3,644 acres which represents the 2, 993 acres of oranges, 375 acres of lemons and 276 acres of grapefruit which were planted during the year.

The following table computed from the last two reports of the crop statistician shows the comparative gains or losses made and shows not only the bearing and non-bearing but the new plantings as well:

Grapefruit

	1927	1926
Bearing	6,223	5,682
Non-bearing	4,419	3,386
New plantings	276	115
Total	10,918	9,183

Lemons

	1927	1926
Bearing	43,179	44,798
Non-bearing	1,535	2,165
New plantings	375	242
Total	45,089	47,205

Oranges

	1927	1926
Bearing	185,543	183,859
Non-bearing	15,366	11,143
New plantings	2,993	2,505
Total	203,902	197,507

Total Citrus Acreage for State

1927	1926
259,909	253,895

—California Citrograph.

CLAY BINION NOW IS MEMBER AFG ORGANIZATION

Clay Binion, for a number of years prominent in connection with citrus matters in and about Orlando, recently joined the general field force of the American Fruit Growers Inc.; and is now attached to the Orlando offices.

Mr. Binion is widely known in citrus circles in Central Florida; and with his experience promises to become a valuable adjunct to the American's field forces.

Adv.

UNIFORMLY

THE BEST

The Industry Progressess

The American Fruit Growers Inc. was first to introduce individually trademarked fruit, which could be recognized by consumers and connected with the advertising. The other principal figures in California and Florida are now following the example set.

The "American pack" as a method of showing to best advantage oranges and grapefruit of superior quality, now so widely imitated, was likewise originated by this organization.

Direct cash returns to each individual grower, with a freely given invitation to inspect all telegrams, letters and records relating to his transactions at any and all times, was an American Fruit Growers Inc. innovation which has meant much to growers. Coupled with the speedy handling of sales and returns, it has stimulated others to follow as closely as possible the example set, to the material advantage of Florida growers.

This organization played a foremost part in the organization of the Grower & Shippers League of Florida, and since has steadfastly supported its activities, both with its cash contributions and the freely given time of its executives.

The American Fruit Growers Inc. was prominent in the origination of the Fruitman's Club as an organization constructive in nature, and for the benefit of the Florida industry as a whole, comprehending the allegiance and coordination of ALL possible factors—cooperative and commercial concerns alike.

The American Fruit Growers Inc. is joining its best efforts with any and all other interests which show a willingness to work together in the effort to establish a Clearing House for citrus sales. In this it is doing no more than are some others; but it is playing its part willingly and of its own initiative. It is at all times more than willing to do its part in any movement for the general good of the industry. The industry progresses; and as it progresses we also advance. We do not believe any single concern can grow faster than the industry.

American Fruit Growers Inc.

Orlando, Florida

DEPENDABLE AFG QUALITY

Adv.

IMPRESSIONS

By The Impressionist

Up to Jacksonville for a stay. Put up at a hotel which apparently is trying to earn public approval by posting its rates in each room. We note, however, that the rates named upon the cards in the rooms which we and our family occupy are just about double what the management by agreement is charging us. Our impression is winter visitors next season will therefore likely pay a plenty for these same accomodations.

Sunday afternoon and walking back to the hotel alone a lady accompanied by a little girl speaks to us, oh so nicely. We bow as distantly and coldly as we know how, having no intention of getting arrested for speaking to strange ladies in strange places. Then a man steps out the door of a garage, and we exclaim: "Hello, Arthur, for Pete's sake have your wife wear a hat on the street so we can recognize her quickly so far off home base." And Arthur Klemm of Winter Haven and Mrs. Klemm are laughing heartily at our absent-mindedness and embarassment. It turns out they are stopping at the same hotel, and that night we sit down for a long and pleasant visit with Arthur Klemm concerning things citrus.

Back to the hotel to run into Fred E. Godfrey of Orlando, ex-president of the Fruitman's Club, and admittedly the handsomest man in the fruit business. Fred Godfrey is just stopping over a bit on his way home from a vacation in New Hampshire from whence he hails, and where he and Mrs. Godfrey and President Coolidge all were kids together in the same township. Inside information: Some folks think if you want something out of the republican administration you should take the matter up with George Bean of Clearwater, Florida's member on the Republican National Committee. Not so. Take it up through Mrs. Godfrey, who has the direct ear of both Mr. and Mrs. Coolidge.

Next day whom do we run into but G. G. Ware of Leesburg, who is just up to Jacksonville on business. He was named as one of the banker-members of Mr. Jardine's original conference, but did not attend the pow wow. Nevertheless he has long been keenly interested in citrus affairs in Lake county. He reports things O. K. in Leesburg, with Jefferson Thomas there just as big as life and twice as natural.

Then over to another hotel to register attendance at a so-called vegetable growers meeting on the subject of tariff protection against Mexican and Cuban vegetables which had been called, and was presided over, by H. N. Rodenbaugh, vice-president of the Florida East Coast Ry. This meeting shows very clearly the futility of calling growers meetings in Jacksonville. There are some important Florida business men present but actual count shows only seven real bona fide growers. On the other hand there are, by actual count again, thirty-one railroad men in the gathering. After a bit it seems sure that with such a ratio of attendance the meeting cannot be expected to accomplish much, and we depart quietly. In this we are joined by C. M. Rerry, president of the Sanford Farmers Exchange, one of the seven growers referred to, who had reached independently our own conclusion.

An opportunity, however, for a nice chat with Senator Wells, long a member and now chairman of the Florida State Railroad Commission. We discuss this tendency of the railroads and of the Interstate Commerce Commission to call meetings of the fruit and vegetable growers in Jacksonville rather than at other points nearer to the centers of production; and generally the failure to obtain any representative attendance, while meetings set for points further down the peninsula are well attended. Our impression is if these same railroad officials, who have only to put the costs of their attendance in their expense accounts, were under the compulsion of paying their own expenses to such meetings as the growers generally must do, they would more readily understand why meetings nearer at hand are better attended.

Up the street in Jacksonville one evening we run plump into former Senator James E. Calkins of Fernandina, long counsel for the Florida State Railroad Commission, and the man who aided in starting the line-haul rate case of the Growers and Shippers League on its way. He is now in private practice of law at Miami, and isn't worrying about rate cases. He is getting along all right; but those growers and shippers who have taken close interest in our traffic problems miss him greatly from conferences, and sadly miss his intelligent work at Interstate Commerce Commission hearings.

And here, right in the hotel lobby, is Oscar Johnson formerly widely known as managing editor of the Tampa Tribune under Colonel W. F. Stovall's ownership. Oscar hid out in St. Petersburg for the term of the Gold Rush; but now is out and is looking around. It is said he made so much money during that period that he isn't likely to go back to a newspaper desk. Maybe he is going to start an advertising agency, or maybe a bank, in Jacksonville where he is well known, having been managing editor of the old Metropolis there before going down to Tampa. Oscar is interested in talking politics, but doesn't seem to understand our announcement that next time we are going to elect three citrus growers governor, allowing them to rotate on week days and giving the job a vacation on Sundays.

We wanted to see William Gomme, who now is county agent for Duval county, but missed him. They have a good man there on the job in Bill, if they want to go about the agricultural development of the county seriously. We hope they do. Jacksonville occupies a peculiar position with relation to Florida, somewhat as New York does to the State of New York. Neither understands the other to any considerable extent. A good bit of this undoubtedly is due to Jacksonville's isolation because of the sparse development of the country districts about it. In our hearing in the same hotel lobby a business man from downstate, who evidently had run

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Citrus Comments

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factory for a general statement to be attempted as to their being always effective.

Lining up Grove Work Important

Following the summer time which for most groves is a period of undisturbed growth, the time for Fall work rapidly approaches and with so many things assuming importance at one time, such as fertilizing, cultivation, spray work, pruning and fruit marketing, a careful plan must be outlined that will be first; economical, second: effective, and third: easily carried out.

The most important step in the Fall is the necessary fertilizer application. This application if properly made is used to correct and supply the deficiencies that are apparent from the year's growth just passing. In other words, to quote current happenings, many groves are showing the accumulative effect of the June and Spring fertilizing. This effect shows up in the growth of the trees, the color of the leaves, the quality and appearance of the fruit. If these points are satisfactory, only the amount of fertilizer required to carry the grove through the winter in ideal condition and at the same time to get it into condition for blooming the following Spring, would be required. If, on the other hand, the fruit is seriously deficient in some important quality or the growth of the trees is unsatisfactory, the Fall fertilizing can be planned as the first corrective step in remedying the condition.

The Fall application is, therefore, of more importance than either of the other two, because of the chance of remedying undesirable conditions more effectively than at any other season of the year.

It has become almost a standard practice to apply a high potash at this time of the year, but the knowledge as to why this is so desirable is not so generally known. Therefore, the tendency has been to use too little potash rather than too much. The potash aids a normal maturity of the crop and in normal maturity of the Summer and Fall tree growth, therefore it is directly responsible for fruit quality and for increasing the chances of bloom during the following Spring. Incidentally, it is a corrective for over-ammoniation, tending, apparently, to balance the fertilizer formulas to that point where the trees can properly assimulate the various materials supplied it.

The quantity of the Fall application will depend first on the size of the trees, together with the amount of fruit that they are carrying, and second, it has a direct relationship to the amount of fertilizer applied in June and in the Spring, and is, therefore, indirectly influenced by the weather of the past summer.

To get real grove results the Fall applications must be considered seriously.

Insect and Disease Control

On the approach of dry weather in the Fall of the year, rust mites always re-appear on the fruit and leaves, but only an inspection with a hand lens can determine if they are sufficiently thick to prove serious.

In even the best cared for properties, scale insects will increase to that point where a control is necessary, or else serious grove injury and loss of fruit will result. Due to the rapidity of the spread of purple scale and also more occasionally of Florida red scale, it seems entirely feasible and economical to plan a Fall clean up spray everywhere. As a result of this spray the grove is kept more healthy, the fruit matures with improved quality and is usually large in size and does not rot as quickly as un-sprayed fruit while in transit, and indirectly the trees are able to carry a heavier crop each season than would otherwise be the case. However, there is no evidence that spraying will take the place of fertilizing, even though the spray which can be generally recommended is some standard make of oil emulsion in a dilution of approximately one to fifty, or one to forty-five. If rust-mites are present some form of liquid sulphur that will mix with the spray material used can be added to it, and sprayed on in the same application.

Within the next two years a number of new type oil emulsions will be lined up so that general recommendation can be made for their use. It seems desirable, however, at the present time that we shall have a little more data regarding the influence of such spray on fruit quality and growth. So far it can be stated that their use has proven very promising. As a general statement no well established Company or Manufacturer will place a dangerous oil emulsion on the market without claiming full responsibility for any harmful result that might be secured where such a result is due to the material itself.

Pruning

One oft repeated question is "When shall I prune?" and about the best answer yet given is, "Whenever and as soon as you can get at it." There does not seem to be any reason why necessary pruning should not be done at the above given time. Fortunately with Florida citrus a minimum of pruning is satisfactory. It can be restricted almost altogether to dead wood, water sprouts and such limbs as allow their fruit to lie flat on the ground. High heading is not desirable and excessive thinning is entirely unnecessary, especially with grapefruit, as often the inside wood supports the whole crop; and with seedlings where excessive thinning is actually injurious. If a choice can be made, the pruning should be done during the winter dormant season.

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FERTILIZERS FOR FLORIDA FRUITS AND FARM CROPS
SIMON PURE AND GEM BRANDS
"TIME TRIED AND CROP TESTED"
Forty years Satisfactory service to Florida Growers
Long dry spell about Over.
Order now and save money by getting our REDUCED JUNE FIRST price list before buying. Fair prices, Quality Fertilizers, Prompt Service.
E. O. PAINTER FERTILIZER COMPANY
JACKSONVILLE, FLORIDA

HOTEL HILLSBORO
Tampa, Fla.
TOP O' THE TOWN
European Plan, Fireproof 300 Rooms With Baths
THE CENTER OF TAMPA

Since the days of the first "Citrus Laundry"

The forerunner of great progress is certain to meet with skepticism. The discovery of America, of electricity, the railway train, the automobile, the aeroplane—all were disparaged in the beginning. Likewise the little shack devised for washing and packing fruit—the first "Citrus Laundry"—was ridiculed and made the brunt of many humorous remarks. Yet today witness the great packing and marketing organizations that have resulted.

Since the days of the first citrus laundry, and for 34 years throughout the development of Florida's citrus industry, the Wilson & Toomer Fertilizer Company has led all others in fertilizer sales. More growers have bought IDEAL BRANDS than any other kind.

It is now time to re-vitalize your grove for next season's crop. Trees that have borne fruit have expended energy, and need food to restore vitality for the coming yield. Be guided by 34 years of preference, and apply IDEAL BRANDS fertilizer.

Our new booklet, "Fall Facts for Citrus Growers," from the pen of Florida's leading citrus authority, Prof. Bayard F. Floyd, is now ready for distribution. If a copy has not already reached you, write for it today.

Wilson & Toomer Fertilizer Co.
JACKSONVILLE, FLORIDA

W. S. McCLELLAND, President
CHAS. B. STERLING, Secretary

OFFICES: LEESBURG, FLORIDA
EUSTIS, FLORIDA

LAKE NURSERY COMPANY

INCORPORATED $300,000.00

OLDEST SOUR NURSERY IN FLORIDA

EUSTIS, FLA.

October 5, 1927.

To Interested
Citrus Growers:

Our argument in favor of sour orange rootstock is so well founded as to be practically unassailable. The whole experience of the last fifty years in Florida sustains it.

Taking the superiority of the sour orange root in the production of fruit of true market quality as granted, it rather follows, we believe, that the best place from which to purchase trees on sour stock is from a nursery which specializes in trees wholly on that stock.

Here at Lake Nurseries we have for the last twenty-five years produced trees only on sour orange roots. It took many years experience and experimentation to reach the conclusion that the sour orange root was the one best bet for our use here in Florida. Our policy once determined we have seen no reason for change. On the contrary after twenty-five years adherence to it we are more than ever confirmed in the correctness of our earlier conclusions.

When you buy trees here you not only purchase trees on nothing but sour orange stock, but you obtain trees on the very best sour orange stock. Years of intensive study of, and work with, the sour orange have given us a rare understanding of it.

You profit by dealing with specialists-

You can be assured trees are not only on true sour orange stock; but that the methods of selection, budding, cultivation and handling have been correct from the very beginning. Any job well begun is half ended.

We sell trees of two grades at two prices. You can get here trees that are perfect, without a blemish. They constitute one grade. For those who wish cheaper trees we have them, in good substantial stock which will produce fruit of as good quality as any, and good looking trees, too, even though not entirely perfect. The price on these is a big attraction.

Drive up to our nursery, four miles East of Leesburg, on the main highway to Eustis, and see personally the extremely high grade stock our time tried methods produce.

Yours very truly,

LAKE NURSERY COMPANY,

wsm-a W. S. McClelland, President

Citrus Comments

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Cultivation

The next step of importance in grove work after the three outlined above have been satisfactorily lined up, is planning for the cultivation. It is best started with the Fall application of a fertilizer, and then continued at two to four week intervals throughout the winter and Spring seasons.

At some future time all of these four steps will come in for some detailed discussion as to desirable methods of their performance. The best gauge by which this may be decided is the one of economy, as always the grower must consider the cost of his fruit on a box basis. The important point for us all to remember is that our groves must have, lined up for them in the Fall of the year, the proper Fall application of fertilizer suited to the particular property to which it is to be applied, the necessary oil emulsion spray, which may be considered a Fall clean up spray, the necessary pruning, and proper plans for carrying on the winter cultivation. Of all of these steps the fertilizing is the most important, and is the one which we can least afford to omit.

Impressions

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into a lack of understanding somewhere in Jacksonville, indignantly: "The average Jacksonville business man has about as good an idea of Florida as a Greek restaurant cook has concerning southern corn bread."

Next day we happened to repeat that remark to C. G. Baxter, the Florida manager of the Virginia-Carolina Chemical Co. Instead of being indignant as a Jacksonville business man, he was sympathetic with the disgruntled one. Said the statement was fairly apt, and unfortunately too true. He is a close student of Florida, particularly of the peninsula portion. His conclusion is that downstate Florida is a law unto itself, and is an appendage to, rather than a part of, the rest of the United States. His idea is that the peninsula rewards with its business those who study its methods and try to harmonize with them, but that it isn't to be made over to suit the ideas of any outsider. Our own impression is that he is about right.

And here, at the hotel again, is John Paver of DeLand, who by marriage is related to Mr. Baird of Alex-

Continued on page 26

TRY!

A thorough cleaning up of trees and fruit at this season results in bettering the quality of product and makes for a clean-up of prices sufficiently better to return all costs of materials and labor several times over. Thus clean-up two ways.

New Process Standard Spray Formula At Our Risk

Oils nor the emulsifying materials introduced by us in making the FIRST hard water formula have not been changed but as a result of the exclusive process—planned for several years and installed at a cost of several thousand dollars you will get BETTER RESULTS because the oil is more finely divided—smaller globules, quicker and greater diffusion, the combined spreader makes it spread and stick better, no shadowing or burning of fruit.

So stable our replacement guarantee is longer. Absolutely uniform. A pint, ten gallons or a thousand barrels unvarying. Yet the same reliable formula is unchanged.

Don't take our word for it. Try it on the following basis: Order what you need for the fall spraying on basis of the substantial reduction in price. Use as much as needed for a thorough test. If the results are not satisfactory, no charge will be made for the quantity used in the test, or enough for one full tank will be supplied free of charge. Complete Price List, containing spraying and dusting schedules and other valuable information, supplied upon request.

J. Schnarr & Company

Florida's Standard, Oldest Line of Sprays
Schnarrs Standard Dust Mixtures

Orlando, Florida

Winter Haven, Florida

Impressions

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ander & Baird. John Paver is the chap we mentioned in these columns last month as having sat in at the origination of the trademark and the selling plan of Sun Maid Raisins for the California growers. He was for many years one of the top-notchers in the Chicago advertising world, and is a merchandising man of real national reputation. John Paver has adopted Florida, however, and expects to remain among us permanently. He was at Tampa for a while when he first came down here, then at Lake Wales. Now DeLand claims him, and we have a notion he will settle there for keeps. Mrs. Paver, just back from a trip to Chicago, is still just as enthusiastic about Florida as when she first came here. John Paver has not had to do with the advertising business in the last few years since he came to Florida, but his friends in national advertising circles are legion.

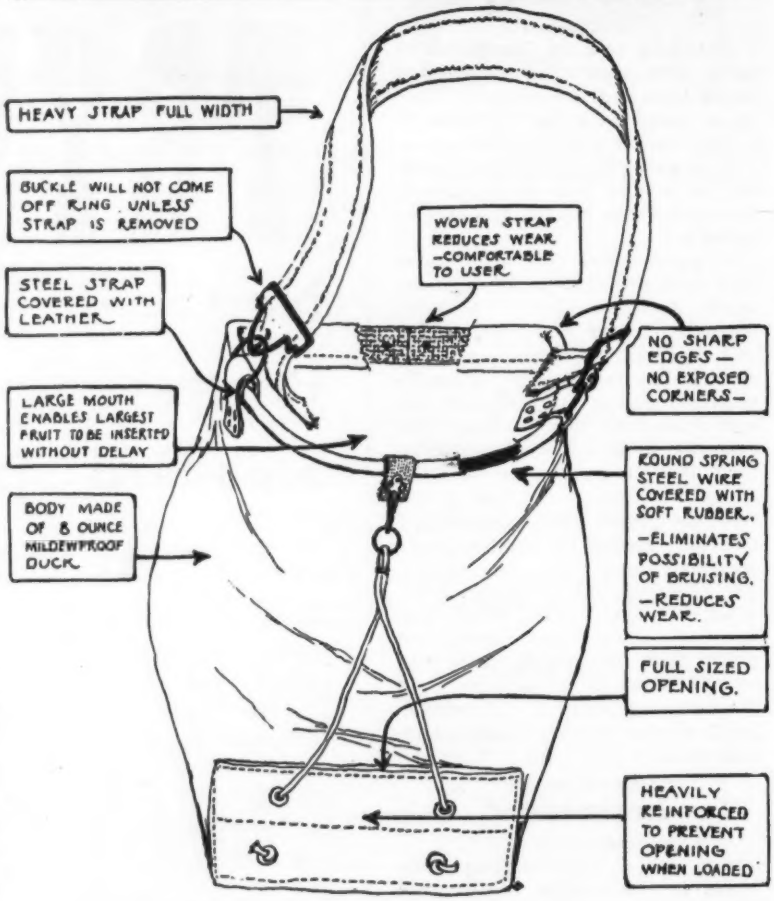
C. W. (Joe) Lyons present in official capacity as representative of the Tampa Board of Trade at a recent beauty contest; himself fully one-half the show even though the selection was up to a "jury" of younger but not nearly so handsome men. We take this opportunity to caution Mrs. Lyons against thus allowing Joe to wander around loose. Next thing we know he'll undertake to judge a baby show; and our impression is that judging a baby show is the acme of foolhardiness. Prominent citrus figures should not be allowed to run such undue risks. By the bye, however, one of the winners in the aforesaid beauty contest was Gretchen Allan, daughter of Halle Allan who is pretty widely known among our citrus folks.

NEW INVESTIGATOR FOR HOME ECONOMICS WORK

Dr. Chester F. Ahmann, a professor of physiology at the University of Missouri, has been secured as assistant home economics investigator for the Florida Agricultural Experiment Station. He came to Florida on August 1st, and assumed his new duties.

Dr. Ahmann is a graduate of the University of Missouri, having received his Ph.D. degree from that institution. He will be physiologist for the home economics department of the Experiment Station.

Do you like to keep free boarders? Then don't treat your corn for weevils with carbon bisulphide.


HEAVY STRAP FULL WIDTH
BUCKLE WILL NOT COME OFF RING UNLESS STRAP IS REMOVED
STEEL STRAP COVERED WITH LEATHER
LARGE MOUTH ENABLES LARGEST FRUIT TO BE INSERTED WITHOUT DELAY
BODY MADE OF 8 OUNCE MILDEWPROOF DUCK
WOVEN STRAP REDUCES WEAR —COMFORTABLE TO USER
NO SHARP EDGES— NO EXPOSED CORNERS—
ROUND SPRING STEEL WIRE COVERED WITH SOFT RUBBER, —ELIMINATES POSSIBILITY OF BRUISING, —REDUCES WEAR.
FULL SIZED OPENING.
HEAVILY REINFORCED TO PREVENT OPENING WHEN LOADED

Non-Bruise Picking Bag

More Improvements Than It Was Thought Possible to Incorporate In One Bag

A remarkable aid in getting fruit from the tree to field box unbruised, and in best possible condition. Experienced packers proclaim it a big step in advance. Adds to pickers' comfort and speeds up operations. A Florida citrus grower's invention that is practical from every standpoint. Built to endure; will outlast many other bags not so well designed or stoutly constructed. If YOU haven't yet seen one in use, send for sample.

Southeastern Electric & Supply Co.

Orlando, Florida

Southeastern Electric
& Supply Co.
Orlando, Florida.
Am interested. Send samples.
We normally buy about _____
picking bags each season. ____

Name _____

Concern _____

Address _____

Gentile Brothers Co.

SPRAY
for
Bright Fruit

And spray with VOLCK, the proven spray for insect pests.

It kills scale, mealy bug, white fly, and red spider, cleans the trees of sooty mold, and helps control rust mite.

Has extremely wide margin of safety and can be applied any time of year without the old-time oil hazard to fruit and foliage. Does not wash off in the summer rains.

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CALIFORNIA SPRAY-CHEMICAL CO.
O. R. BLOIS, DISTRICT SALES MANAGER
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VOLCK
—the scientific spray

MARKING DEVICES
for
Growers
Packers
Shippers

Quality Guaranteed

Catalog Free

THE H. S. & W. B. Drew Co.
EST. 1855 QUALITY EVER SINCE
Jacksonville, Fla.

Two Big Concerns Merged Into One

Announcment of considerable interest to citrus circles recently was made from Cincinnati. It announced the details of the merging of the Joseph Gentile Co. and the Gentile Brothers Co. into a new Ohio corporation under the name of the Gentile Brothers Co.

The Joseph Gentile Co. has for many years been one of the foremost fruit handling concerns in Cincinnati with a very large business throughout Ohio and that section. It also controlled the California properties of the Gentile interests. The Gentile Brothers Co. had been a Florida corporation controlling packing houses here and approximately two thousand acres of Florida grove properties.

These are now merged in the new Gentile Brothers Co., an Ohio corporation with $750,000 of preferred stock, and fifty thousand shares of no-par-value common stock. Its northern headquarters will be at the Fruit Exchange Building, Cincinnati. Its Florida headquarters will remain in Orlando.

Lawrence Gentile of Orlando is president; Joseph Gentile, also of Orlando is first vice-president; Victor Gentile in charge of California operations is second vice-president; and Leonard Gentile of Cincinnati is secretary and treasurer. Gus Gentile will remain in connection with Florida operations maintaining his headquarters at Haines City as heretofore. Herbert Gettier continues as salesmanager at Orlando.

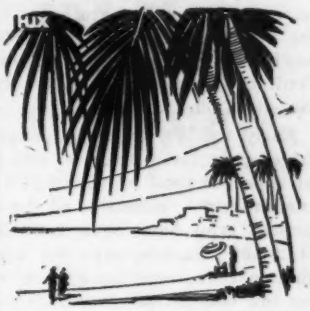
The Cincinnati despatches predicted considerably enlarged activity for the new undertaking.

The Hardee-Gentile Co., handling Florida East Coast tomatoes and truck crops, in which Joseph Gentile is primarily interested, is not included in the merger, but will maintain its separate entity.

Recently the Gentile Brothers Co. took over the entire second floor of its own office building on West Central Ave., Orlando, only part of which it had occupied previously. This has been refitted and refinished, providing commodious and handsome office facilities for the new organization.

A huge community junk bonfire was held recently by the garden club of Cocoa and Rockledge. The purpose was "to make the community an unforgettable place of beauty to the passer-by, and a beautiful place to live in." Other communities might well follow the example.

"Unless we get our farmers to cooperate, very little can be accomplished," says Sam H. Sherard, Okeechobee County agent. "Economical production and distribution are the mud sills of agriculture."



That Atmosphere Of The Tropics

Folks expect that Tropical Atmosphere when they come to Florida, just the same as they expect the balmy days of sunshine and the mild temperate climate. You have the sunshine and the climate and we can furnish you the plants to create that Tropical Atmosphere.

A few well chosen palms and highly colored crotons will give this effect very easily and quickly. Our collection of such subjects is unusually complete and you can find here the sizes and varieties best suited to your needs. Visit us at Oneco and make your own selections from Florida's largest Ornamental Nurseries.

Reasoner Brothers'

ROYAL PALM NURSERIES

Oneco, Florida

Our new 1928 catalog will be ready in November. Write for your copy.

Light Plants, Automatic Water Plants and Electric Refrigerators
CHARLES GREENE CO.
1221 Florida Ave. Phone 3477
TAMPA, FLORIDA

Smallest Apple Crop In Six Years

Prospects that the apple crop this year will be the smallest since 1921, and, excepting that year, the smallest in twenty years, are reported by the Bureau of Agricultural Economics, United States Department of Agriculture, in a special summary of the situation.

Early fall frosts are endangering the crop in some districts, and from an expected total of 26,200,000 barrels on July 1, estimates of the commercial crop have been reduced to 24,200,000 barrels, says the bureau. Similar reductions have been made for the commercial crop in Canada, where less than 3,000,000 barrels are expected.

Total apple production in the United States was forecast in September at 123,600,000 bushels, or scarcely more than half of last year's bumper crop. Spring freezes, scab and insect injury are partly responsible for the heavy losses, and prolonged drought affected the crop adversely in the Great Lakes region. Overbearing last year also weakened the condition of trees, particularly in the East. The commercial crop is especially light in the Ozark region, in Michigan and New York, and in the Potomac-Shenandoah Valley area.

A very light crop, a late shipping season, present prices higher than last year, and probably a smaller export movement are the main features of the apple situation, says the bureau. Marketing conditions for summer apples were exceptionally favorable. The market is depressed at present, but there is a general feeling of optimism among growers and shippers. With condition of the citrus crops in Florida and California lower than last season, competition from oranges and grapefruit is expected to be less severe.

The bureau reports that "it is generally believed that exports for 1927-28 will fall considerably below the record of last year, because of the light crop here and the heavier production in Great Britian and on the Continent. Overseas shipments so far this season have been much lighter than the corresponding volume in 1926. British markets have been heavily supplied with domestic apples of poor quality. Harvest will be largely completed by October 1, and market opportunities for good American fruit should then improve. Industrial conditions in England and Scotland, however, are still below normal, and this may affect the purchasing power in those countries."

United States Civil Service Examination

The United States Civil Service Commission announces the following open competitive examination:

Assistant Warehouse Examiner (Fruits)

Applications for assistant warehouse examiner (fruits) must be on file with the Civil Service Commission at Washington, D. C., not later than November 1.

The examination is to fill vacancies in the Bureau of Agricultural Economics, Department of Agriculture, for duty in Washington, D. C., or in the field, and in positions requiring similar qualifications.

The entrance salary for this position in Washington, D. C., is $2,400 a year. Appointment to the Field Service may be made at any rate within the pay range for the grade, namely, $2,400 to $3,000 a year, varying with the conditions obtaining at the headquarters where the vacancy exists. A probationary period of six months is required; advancement after that depends upon individual efficiency, increased usefulness, and the occurrence of vacancies in higher positions.

The duties are to inspect warehouses to determine their suitability for the storage of agricultural products, particularly dried fruit, canned fruits and vegetables, and such products as go into cold storage, such as apples and other fruits; to determine the capacities of warehouses and amounts of stocks therein; and to perform miscellaneous duties in connection with the administration of the United States Warehouse Act, including the preparation of reports and the handling of correspondence. In the inspection of warehouses it is necessary to analyze financial statements and to prepare clear and concise reports.

Competitors will not be required to report for examination at any place, but will be rated on their education and experience, and a thesis or discussion to be filed with the application.

Full information may be obtained

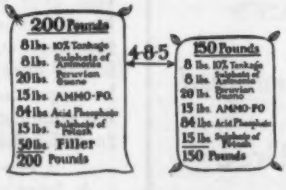
A&G

A&G NO FILLER BRANDS

FERTILIZER

The Old Way

You bought a 200-pound sack containing 150 pounds of plant food and 50 pounds of filler. This worthless filler costs you about 16 cents per bag for freight, haulage and distribution.



A & G Method

You buy a 150-pound sack containing 150 pounds of plant food only—no filler. You save the cost on freight, haulage and distribution of worthless matter.

Write for Our New Farm Record Book

ATLANTIC & GULF FERTILIZER CO.

C. NASH REID, President

Jacksonville, Florida

from the United States Civil Service Commission, Washington, D. C., or the secretary of the board of United States civil service examiners at the post office or customhouse in any city.

Miscellaneous Notes On Things Citrus

Continued from page 15

ed with sulphur. The side of the fruit facing the direct sun light showed yellow spots or large yellow areas. Some of these spots were scarcely visible and showed up as very light yellow areas. The injury was very slow in developing. There was no injury whatever to the fruit sprayed with either oil and not dusted with sulphur.

The injury was of commercial importance and we would advise growers to wait two or three weeks after the application of oil sprays before dusting is done.

Plant Board Makes New Rules Covering Movement of Plants

New rules and regulations which will be of special interest to nurserymen and others interested in the movement of plants into or within the state of Florida were passed by the State Plant Board at its recent meeting in Tallahassee. The new rules become effective January 1, 1928.

While no radical or revolutionary changes were made, considerable modification in a number of instances was effected. The wording in some rules was simplified and the meaning clarified. Perhaps the most marked changes were made in connection with the rules applying to the inspection of nursery stock.

A decided change from former practice was the decision to make use of an annual certificate tag in place of the old tags which bore no expiration date. Under the new rules such certificate tags will be valid from date of issuance until the following June 30.

Another change which will be of interest to nurserymen was the decision to require, as a preliminary to movement, defoliation of citrus nursery stock only. Heretofore the rule on this specified that all nursery stock, with certain exceptions, must be defoliated.

Those interested in securing the details of the new rules may do so by asking for the October issue of The Monthly Bulletin of the State Plant Board.

"PERSONALIZED" SALES SERVICE For Citrus Growers

Our president, W. H. Mouser, personally handles the selling of all fruit we market.

His standing in the citrus industry of this state and with the trade of the United States and Canada, backed by a successful experience of eight years in California and nineteen years in Florida, insure you unexcelled sales service.

W. H. Mouser personally familiarizes himself with your individual crop—quality, sizes, maturity, etc. This "personalized" service assists him to sell your fruit intelligently after it is packed and furthermore enables him to confer with you in reference to picking at the proper time to realize highest prices for your particular quality, sizes or maturity.

Do not let your fruit be "thrown in the average" or handled without exact knowledge of its advantages or disadvantages.

Profit by having your fruit marketed by the organization featuring—

"PERSONALIZED SERVICE"

W. H. Mouser & Company

Marketing Agents for Growers, Associations and Packers

Main Offices: State Bank Bldg., Orlando
Packing Houses: Orlando, Yalaha, Crescent City, Lakeland, Lake Wales, and Ozona

—WE ALSO PURCHASE FRUIT ON THE TREES—

Bordeaux mixture.

Preparation of Bordeaux Mixture

By G. F. Weber

Bordeaux mixture is a liquid spray made from bluestone (copper sulphate) and either rock or hydrated lime. This mixture is applied to the foliage of plants and acts as a fungicide. This spray must not be made in metal containers. Use wooden pails or barrels, or earthenware crocks instead. Never mix the concentrated (stock) solutions and never use Bordeaux mixture that is more than 12 hours old.

Home-made Bordeaux mixture, 4-4-50 formula, is a most valuable spray for the control of plant diseases. Altho not used exclusively by the growers, it is probably used more than all other fungicides combined. When weather conditions are normal it gives good control if properly made and applied.

If a large amount of spraying is to be done it is most convenient to make up stock solutions of bluestone and lime in such proportions that one pound of either bluestone or lime is contained in each gallon of water. These stock solutions will keep indefinitely provided they are not allowed to dry out. When a stock solution is once made the surface level should be marked on the inside of the container so that water lost by evaporation can be replaced and the whole thoroly stirred before any of the materials are used. Keep stock solutions covered.

Mixing Platform: If many acres are to be sprayed during the season, it would be advisable to construct a mixing platform where the Bordeaux can be conveniently made. The first thing to consider is the water supply. Build the platform in a place convenient to both the water supply and the field to be sprayed. The platform should be well built and high enough to permit the solutions to flow by gravity into the spray tank. Upon this platform should be built a second, smaller platform upon which the stock solutions are made. The smaller platform should be elevated enough so that the stock solutions can flow into the barrels on the main platform.

Stock Solution A, Bluestone: Dissolve at the rate of 1 pound of bluestone to 1 gallon of water; put 50 pounds of bluestone into a clean bag and suspend it in the top of a 50-gallon barrel of water. It will dissolve over night. Never use a metal container for this purpose. Always stir the stock solution before taking any out.

Stock Solution B, Lime: Shake 50 pounds of rock lime and dilute it in 50 gallons of water. Be careful not to drown or burn the lime while slaking. Always stir the stock solutions before taking any out. Do not stir the two stock solutions with the same stick.

Hydrated lime may be used in place of rock lime. If hydrated lime is used it is necessary to use ½ again as much as rock lime. Thus 75 pounds rather than 50 pounds should be used in 50 gallons of water.

In making Bordeaux mixture observe the following directions: Dilute the required amount of bluestone solution to half the amount of spray to be made. Dilute the required amount of lime in a separate container to half the amount of spray to be made. Then pour the contents of the two containers at the same time into a third container or spray tank, stirring the combined mixture as the two are poured together. Be sure to place a fine strainer either over the faucets on the barrels or on top of the spray tank so that all of the liquid will be well strained; this will prevent nozzle trouble in the field.

If it is impractical to use the above method of mixing the Bordeaux, the following method may be used: Pour the diluted lime solution into the spray tank, set the agitator going and add slowly the diluted bluestone solution.

Different Amounts of 4-4-50 Bordeaux Mixture: In making 50 gallons of the mixture, use 4 gallons of stock A, diluted to 25 gallons, and 4 gallons of stock B, diluted to 25 gallons. Run both of these into the sprayer at the same time with the agitator going. For larger amounts, use the same proportions. For instance, to make 100 gallons of spray, use 8 gallons of stock A, diluted to 50 gallons, and 8 gallons of stock B, diluted to 50 gallons. Mix as above.

To attract and kill flies one of the best solutions is a teaspoonful of a 40-percent mixture of formaldehyde and water placed in a teacupful of equal parts of milk and water. Put it out of the reach of children and pets.

"Oh rats," says the farmer. Make the crib rat-proof, and they will not destroy feed crops.

THERE IS A DIFFERENCE IN FERTILIZER

The next application of Fertilizer that you apply to your grove will mean considerable as to the Quality of Fruit

Use

Orange Belt Brands

LYONS FERTILIZER CO. ORANGE BELT BRANDS TAMPA, FLORIDA

"Quality Fertilizers"

for

"Quality Fruit"

The Newark Company
Incorporated
CARLOT DISTRIBUTORS
COMMISSION MERCHANTS
FRUITS AND PRODUCE
159 SO. ORANGE ST.
New Haven, Conn.

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KNOW the latest FACTS right from Washington, the center of farm news. The National Farm News. Is an independent weekly newspaper edited for farmers and rural folks by men who know agriculture. Prints truthful "first hand" news and information not found in other newspapers. NOTHING ELSE LIKE IT. Special trial subscription offer 10 weeks for 10c

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215-217 G St. N. W. Dept. XX Washington, D. C.

FACTORS AFFECTING QUANTITY AND QUALITY IN CITRUS FRUITS

Continued from page 7

even and regular development of the fruit from the time of blooming until harvested.

This gradual growth is more easily achieved on old trees than on young ones; with Pineapples rather than Valencias; with trees on sour orange or trifoliate rather than those on rough lemon; on hammock soils with moderate fertilization rather than on high pine land heavily fertilized; with a minimum of cultivation rather than with a maximum; with soils which have carried leguminous cover crops for several years rather than those without such treatment; on irrigated areas rather than those unirrigated; on well drained areas rather than poorly drained ones; with trees pruned lightly rather than severely; on trees with normal foliage rather than on defoliated trees; in groves that are protected by spraying and dusting rather than in neglected ones; on soils which are fertilized moderately rather than heavily; on soils high in potash rather than low; those low in soluble nitrogen rather than high.

Some of these factors are the exact opposites of those favoring the quantity of fruit and there is no doubt that treatment which tends to produce fruit of high quality often lessens the amount. Is it possible to effect a compromise? I believe that it is; yet it is the job of each grower to find the middle point best suited to his conditions. To a certain extent the grower can furnish treatments which favor quantity production. After the fruit has set and reached a certain size the soil and fertilizer may be modified to such an extent as to favor more gradual increase in the size of the developing fruit. The grower who harvests his fruit before the spring blooming period is especially fortunate because with the late fruit, Valencias in particular, conditions favoring the set of the fruit also favor the drying out of that already on the tree. Even if the grower follows a definite compromise which has been successful in the past, adverse weather conditions may throw the whole mechanism out of joint and he may neither have a heavy set of new fruit nor marketable fruit of the current season. The Valencia grower is often like the dog who sees the reflection of the bone in the water, and in snatching at the pictured one loses the one in his mouth.

No one knows better than the writer of this paper that our knowledge of the internal mechanism of the tree is still deficient. It is practically impossible to measure the relative value of these factors in the production of quality and quantity in fruit. However, it is possible to avoid the extremes which have been indicated and which are liable to bring disaster.

NAMING NEW FRUITS

When horticulturists develop new fruits or grains by breeding or cross of familiar plants they have to name the products. "Citrangequat" is an example of a name evolved by breeders for the Department of Agriculture. It comes from a combination of "kumquat" with "citrange." Kumquat is an Americanized spelling of the name for the Chinese fruit. Citrange is itself a fairly recent coinage that tells its own story of a fruit that resembles an orange in appearance with the soudness of a lemon. Incidentally the citrange is the result of a cross between the ordinary sweet orange and a Japanese trifoliate orange of no commercial value and does not resemble either parent. Both these new fruits are hardy substitutes for the lime and lemon, capable of growing in regions too cold for ordinary citrus plants, and in addition are proving of value as budding stocks for the Satsuma orange.

You Have Tried Other Control Measures

Now Try

FUMIGATION

with

CYANOGAS

REG. U.S. PAT. OFF.

CITRUS DUST

EFFECTIVE SAFE ECONOMICAL

Write for booklet No. 29

AMERICAN CYANAMID SALES CO., Inc

1235 North Orange Ave. Orlando, Florida

Citrus Fruits, Germany

The Bremen Fruit Market

By Consul Leslie E. Reed, Bremen, Germany

The demand for fresh fruits at the Bremen auctions exceeds the supply. There should, therefore, be a market for American fruit, especially citrus fruits such as oranges and grapefruit.

Bremen an Important Center in German Fruit Trade

The German people have always been dependent upon imports for their citrus fruits. Within the past 30 years the city of Bremen has become an extremely important market for this essential article of food.

Prior to 1900 most of the local merchants attended the auctions at Hamburg or in England (at Hull or London), but the North German Lloyd Steamship Co. imported fresh fruit direct from time to time and gave support to the efforts of local merchants to arrange for fruit auctions at Bremen.

A fruit auction corporation was organized in 1902 with a capital of 500,000 marks ($119,000) and the business of the company grew slowly but steadily. During its eighth year of business the turnover amounted to 15,379 metric tons of fresh fruit. During the war it was brought to a standstill, but has since revived, and during 1926 the fruit handled by this company and its associated firms amounted to over 48,600 tons, while the total turnover, including branches in other cities, totaled 32,690,908 marks ($7,783,300).

Present Imports add Possibilities for American Fruits

The largest business in any single kind of fruit done during 1926 was in West Indian bananas, of which 1,076,465 bushels, weighing 17,989,819 kilos and valued at 8,994,909 marks ($2,141,645) were imported. After that in importance were imports of Spanish oranges, of which 14,087,260 kilos sold for 2,284,985 marks ($782,140). The other fruits entering the Bremen market were as follows:

Canary bananas, 1,985,675 kilos, 835,928 marks ($199,030); Italian lemons, 1,833,960 kilos, 436,996 marks ($104,045); American apples, 790,675 kilos, 343,923 marks ($81,886); Egyptian onions, 614,573 kilos 107,031 marks ($25,435); Australian apples, 468,362 kilos, 269,155 marks ($64,084); Italian oranges, 398,010 kilos, 232,251 marks ($55,298).

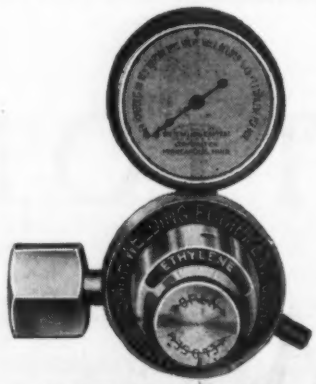
In addition to the foreign fruits mentioned, there is a considerable business done at Bremen in domestic fruits and vegetables.

The sales of American fruits have thus far been comparatively small. Grapefruit, for instances, is practically unknown except to a very small number of traveled persons. Good oranges are usually not obtainable in Bremen, except for occasional small consignments at long intervals.

Judicious Advertising Key to Market Expansion

The head of the auction company considers that Germany has a possible fruit consumption twelve times that of its present amount. In order to develop this business, advertising on a large and continuous scale is necessary. It is already being done in a modest way in the form of an "eat-more-fruit" campaign. These advertisements do not urge the consumption of any particular kind of fruit, thereby avoiding opposition from the agrarian interests in Ger-

When You Use Ethylene—



USE SMITH'S ETHYLENE REGULATOR

Smith's Ethylene Regulator enables you to accurately control the flow of ethylene when used for ripening and coloring of citrus fruits. It also tells exactly how much gas is released.
The regulator is sturdy and reliable. It is easy to operate because there is only one valve to turn. No piping or extra tanks are required. You have an efficient compact unit.
It can be furnished to fit any size or make of cylinder, and the guage can be calibrated to indicate any desired flow.
Price $22.50 f. o. b. Minneapolis.
Write or wire for complete information.

GET THE FACTS TODAY

Smith Welding Equipment Corp.
2631 4th St. S. E. Minneapolis, Minn.

Splitting of fruit caused by Dieback and Ammoniation can be stopped by the use of

NICHOLS TRIANGLE BRAND BLUESTONE
(Copper Sulphate)

With the proper care and foresight you can make this your most profitable year. The use of Nichols Triangle Brand Bluestone is your best insurance against loss in your grove operations. It is the brand most generally used by Citrus growers and Truckers for Dieback control and the preparation of home made Bordeaux Mixtures.

TRIANGLE BRAND COPPER SULPHATE
THE STANDARD OF QUALITY
99% PURE

NICHOLS COPPER CO.

25 Broad St. New York

many.

Should American fruit growers decide to enter the German field and should precede or accompany their entrance by a judicious advertising campaign, it is believed that a market for large quantities of American oranges, apples, and other fresh fruit might be created.

An organization capable of handling the business already exists in Bremen.

Bremen Market Organization

The fruit auction company previously mentioned has built a large building, called the "Fruchthof," in which are the offices of the Fruchthandels Gesellschaft, Atlanta Fruit Co., the Jamaica Bananen- ud Fruchtevertrieb G. m b. H., and other firms. In this building are also situated the auction rooms for the foreign fruits. Just across the street is the warehouse of the company, behind which railroad tracks permit the discharge and loading of fruit directly. The auction rooms for the sale of domestic fruits and vegetables are situated in that warehouse.

A short distance away is the free port, where the vessels bring the fruits from various parts of the world. In Bremerhaven, at the mouth of the Weser River, about 40 miles below Bremen, the Fruchthandels—Gesellschaft has rented a large cold-storage plant, which was originally built for meat importing. This cold-storage plant is now used for the apples which are discharged in shipload lots at Bremerhaven.

Crotalaria As A Soil Builder

Continued from page 5

growth stages, it decomposes more slowly and prevents the heavy loss of nitrogen and organic matter which generally takes place in Florida during the long periods of favorable temperature and moisture conditions. This slower decomposition of the plant residue provides available nitrogen to the growing crop over a longer period of time or in amounts favorable for the needs of the crop. This increase of organic matter to the soil decreases the loss of fertilizer constituents, augments its water holding capacity, and lessens excessive aeration by cementing together the sandy soil particles.

Hog raisers interested in showing their stock at the fairs should write to the United States Department of Agriculture for Farmers' Bulletin 1445 on fitting, showing and judging hogs.

The Brogdex System

The best method for reducing losses from blue mold and for retarding wilting and shrinkage

FLORIDA FRUIT NEED BORAX AND BROGDEX

It is admitted by all shippers that one of the greatest difficulties Florida has in meeting California Competition is in the fact that the dealer has too great a loss from decay and shrinkage when he sells Florida Fruit. The superior flavor and greater juice content are freely admitted. But this avails nothing if the dealer must throw away any great percentage of fruit.

DECAY AFTER ARRIVAL

He may receive the fruit sound but if they decay after he gets them, then he loses, and is dissatisfied. Next time he will either buy something else or endeavor to get his Florida oranges cheaper so that he has a greater margin to cover this decay. Or he will charge the consumer more to make up his losses and thereby reduce Consumption.

REFRIGERATION INCREASES DECAY AFTER ARRIVAL

Refrigeration and pre-cooling only pass along the decay to the dealer and consumer because, while pre-cooling and refrigeration will get the fruit to destination in sound condition, it is well known that these refrigerated fruit decay more rapidly after being exposed to the open air due to weakening of the fruit and due to the presence of moisture of condensation commonly called sweating.

BUILD THE REPUTATION OF YOUR BRAND

It will not take a dealer long to learn that certain brands will keep on his shelves and we will demand your brand if you use borax and Brogdex. The borax will keep his fruit from sweating and the Brogdex will keep the fruit from wilting. They will stay fresh on his stands. Eventually he will insist on your brand. This is what has happened to the Mutual Orange Distributors in California who have used Brogdex for five years. You seldom see MOD fruit on the auction reports. It is practically sold F.O.B.

BORAX AND BROGDEX

The Brogdex System comprised treatment with Borax to reduce decay and with Brogdex to retard wilting and shrinkage. A satisfied purchaser is the best advertisement. It is just as true of fruit as it is of automobiles. If you use this system your fruit will give satisfaction. Without it there will be complaints regarding decay, perhaps not to you but to the jobber who distributes the fruit to the dealer.

Florida Brogdex Distributors, Inc.

13th and Cumberland Streets

Tampa, Fla.

Control Measures For Chinch Bugs In Lawns Outlined

Chinch bugs are giving considerable trouble in St. Augustine grass lawns of the state at this time, according to J. R. Watson, entomologist of the Experiment Station. He gives the following suggestions relative to the damage and control of chinch bugs.

Chinch bugs are often severe on lawns, and if not checked will often kill out a lawn completely. An infested lawn should be kept well watered and should not be mowed too closely.

Like all true bugs the insect does its damage by sucking the juices from the plant and therefore cannot be killed by stomach poisons, but only by contact insecticides. Among the strongest of these is calcium cyanide, a black dust. It is a very strong insecticide and in using it certain precautions must be employed or the grass may be burned. The most important of these is that the grass must be perfectly dry. It must be put on in the middle of the day after the dew has evaporated and with a bright, clear sky, so that there will be little danger of rain wetting the grass before the cyanide has dissipated its strength. The cyanide must be applied very evenly to the grass and it is best to take an old broom and sweep the grass immediately after application. This brushes most of the cyanide off of the green leaves down into the mat of dead leaves and stems near the ground. This serves a double purpose of preventing burning of the green leaves and getting the cyanide down where the bugs are.

Cyanide is a violent poison and one working with it should keep to the windward of the dust. Cans containing the material should be opened only where there is good ventilation.

Other good insecticides are the nicotine sulphate-lime dusts. These can be purchased already mixed or one can make his own by thoroughly mixing 93 pounds of hydrated lime with 7½ pounds of nicotine sulphate. This dust should be applied evenly over the lawn, but no burning will ensue if one happens to get it stronger in some spots than others. This should be put on thick enough so that the grass looks somewhat whitish.

A fairly good dust may be made by mixing finely ground tobacco dust with an equal weight of hydrated lime.

The lawn may also be treated with a solution of nicotine sulphate, using for this purpose one pint of nicotine sulphate to 100 gallons of water. To make the material spread better it is best to put into the water five or six pounds of whale oil or laundry soap or a pound of calcium caseinate.

Separate roosters from the laying flock after the hatching season is over. Infertile eggs keep better in hot weather.

Club work has changed the lives of many of the young people here in Illinois and the parents as well—Mrs. F. A. Dow, Former President Illinois State Federation of Women's Clubs.

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